TERRA COTTA

STANDARD CONSTRVCTION

REVISED EDITION

NATIONAL TERRA COTTA SOCIETY
U.S.A

721.9
N277a
1927
c.2

Roy W. Wakeley

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· STANDARD · CONSTRVCTION

REVISED EDITION

NATIONAL
TERRA COTTA SOCIETY
19 WEST 44th STREET U·S·A NEW YORK, N. Y.
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Introduction

The present volume is a revision of Architectural Terra Cotta—Standard Construction, originally published in 1914.

Like the previous issue, this edition does not presume to suggest architectural design. It shows illustrative architectural forms of assumed proportions, and their proper constructional features. It shows the correct use of Terra Cotta. For a number of examples several good solutions of the structural problems are possible. Variations in size of similar sections sometimes necessitate radical changes in both jointing and construction.

The changes made in this revision are the result of a more extended experience in manufacturing and in modern building methods, and are based on a careful study of the behavior and weathering properties of exterior building materials.

The following are the most important of the structural principles upon which this revision has been developed:

Shelf Supports — In concrete or steel frame buildings, the veneer or facing material should be fully and continuously supported, at each floor level on shelf supports, of adequate strength and stiffness, rigidly connected to the structural frame. Steel shelf angles or supports, in all cases, should be located in mortar joints. The strength of the Terra Cotta should not be unnecessarily reduced by cutting the webs to receive the steel.

Expansion Joints — Proper provision should be made for expansion joints, at shelf supports, over column caps, etc., to prevent the development of disruptive stresses caused by deflection, wind pressure, temperature changes, settlement and like forces.

Terra Cotta on Concrete Frames — The volume changes incident to the setting and hardening of concrete, and the variations in volume of concrete due to humidity and temperature conditions, require provisions to allow free movement of the supporting frame and make it undesirable to completely fill a facing applied to a concrete structure.

Protection against Corrosion — Proper care should be exercised to prevent the corrosion of all steel supports, ties, etc. Where such protection cannot be permanently secured through encasement with mortar or concrete, or through the use of corrosion resistant metallic coatings, non-corrosive metals should be employed.

Free-standing Construction — Exposed free-standing construction, subject to the absorption of water through mortar joints and liable to injury from subsequent freezing, or the expansion of improper filling material, should generally be left unfilled and should be ventilated by means of small, inconspicuously placed weep-holes (indicated by W. H. on the plates).

Flashing and Drips — Properly constructed flashing should be provided to cover the top of large projecting horizontal courses, the backs and tops of parapet walls, wide-exposed sill courses, etc., and all projecting features should have drips.

Terra Cotta

A brief synopsis of the manufacture of Terra Cotta

Drawings — The architect's complete scale drawings and steel framing plans are furnished the manufacturer, who, following the design, makes scale shop drawings showing the jointing and construction, and full size details to the proper shrinkage dimensions. These drawings are submitted to the architect for approval before proceeding with the work.

Models and Moulds — Full size models to shrinkage scale are made of plaster for each different shape shown on the shop drawings. Over these models sectional moulds of plaster are cast, from which later the required number of pieces of Terra Cotta are produced.

Decoration — From the architect's drawings or sketches, in the style and period indicated, modelled ornament is applied in clay to the face of the plaster models. Photographs of the ornamental models are submitted to the architect for approval or he may personally examine these models at the factory—the soft clay permits of such corrections or improvements which may be desired.

Clay — The mixture of clays and fusible minerals used in forming the Terra Cotta is carefully selected and proportioned to give the desired degree of plasticity and a composition which, when fired at high temperatures, will produce a homogeneous body, amply strong to carry the required structural loads.

Pressing — The foregoing processes are preparatory to actual production, the first step of which is pressing. This is a manual operation and consists of pressing the plastic clay into the mould. The walls of the pieces should not be less than one inch thick, following the contour of the mould, and the partitions should be of such thickness and so spaced as to perform their proper functions with regard to form and structure. The pressed piece remains in the mould until the clay stiffens. It is then removed from the mould and is skillfully retouched. Then it is placed in driers, where the moisture is evaporated.

Color — From the drying process, the Terra Cotta passes into the spraying department where, by means of compressed air apparatus, the exposed surfaces are coated with the ceramic mixture which, during the firing process following, develops into the desired color or glaze.

These colors or glazes are prepared with scrupulous care, according to exact ceramic formulae. The variety of shades and textures which may be obtained opens up an unlimited field of permanent color design in architecture.

Firing — Following the coloring process, the Terra Cotta is fired in kilns where it is subjected to a temperature rising gradually to 2,000 degrees Fahrenheit or more, depending upon the temperature of maturity of the clay and glaze. After proper firing, the kiln is allowed to cool slowly to normal temperature, an operation that causes a slow annealing of the Terra Cotta.

Terra Cotta is usually fired in periodic muffle kilns. In recent years, the tunnel kiln has been developed for the firing of Terra Cotta. In the latter type of kiln the Terra Cotta is set or loaded on cars, which travel through a long heated tunnel.

Fitting — From the kiln, the Terra Cotta is removed to the fitting department, where it is laid out and marked to correspond with the piece numbers shown on the shop drawings. It is also marked to indicate the position it is to occupy in the building. Where required, the joints are squared, or cut to proper alignment and size, either by hand or grinding. Careful fitting is essential to assure satisfactory results in the erected Terra Cotta.

Shipping — For rail transportation, Terra Cotta is usually shipped in bulk, securely packed in hay and braced to prevent shifting.

Upon arrival at the building site, the hay should be removed and the Terra Cotta placed in the order marked, in piles on wooden strips.

For export by vessel, the Terra Cotta is usually packed in boxes or crates, according to the special conditions encountered. Another method that has been found to be economical and entirely satisfactory is to ship the Terra Cotta loose after it has been wrapped and tied in corrugated cardboard.

Erection — The appearance of erected Terra Cotta is greatly affected by inaccurate setting and defective pointing of the mortar joints. As the individual pieces of Terra Cotta have been carefully fitted and numbered to correspond with the erection drawings, the PIECES MUST BE ERECTED IN ACCORD WITH THE NUMBERS THEREON if satisfactory results are to be secured.

Time — The Terra Cotta manufacturer will contract to submit shop drawings for approval within a fixed time after receipt of the architect's drawings and other required information. All shipping dates are computed from the date of receipt by the manufacturer of architect's approval of shop drawings and complete data on color and texture desired. Work cannot be definitely scheduled for production until all essential information is on hand. The process of manufacture may take from six to ten weeks, depending upon the size and architectural character of the order.

Specification and Contract — A Standard Specification for the Manufacture, Furnishing and Setting of Terra Cotta and a standard form of contract have been adopted by the NATIONAL TERRA COTTA SOCIETY. They are recommended for general use. A copy of either may be secured by addressing the Society. The specifications are incorporated in this volume.

Terra Cotta factories are conveniently located in the Eastern, Central and Western sections of the United States (see list in back of this volume). All of the Society's membership will be glad to have any architect or designer interested in the processes of manufacture of Terra Cotta visit their plants.

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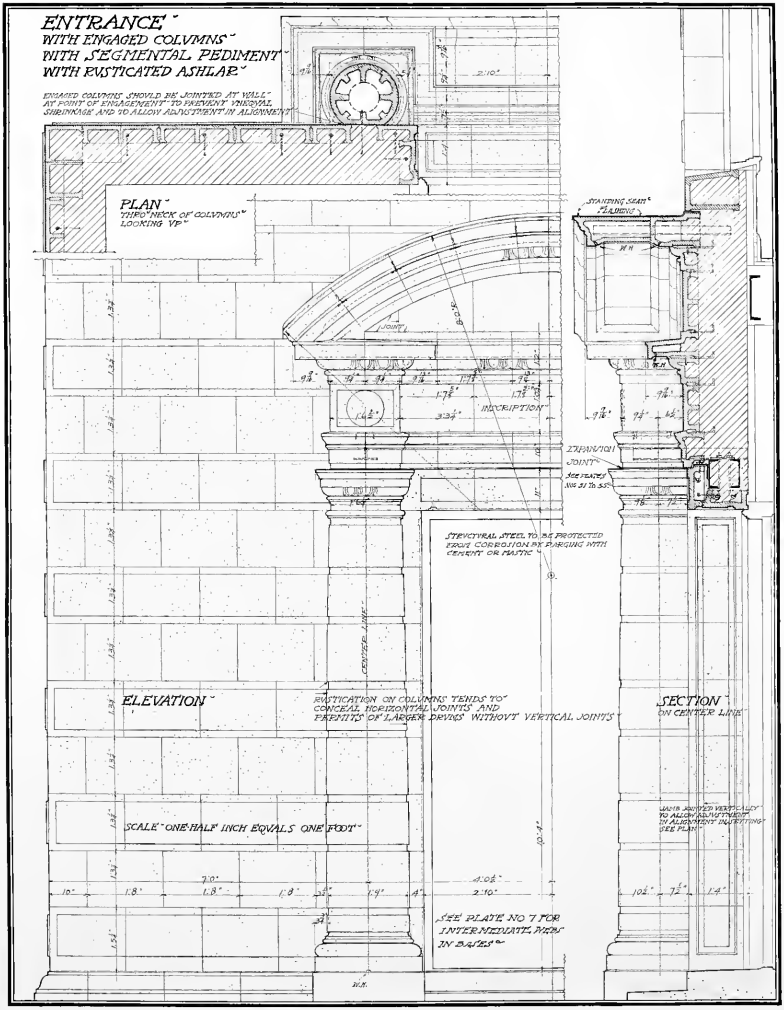
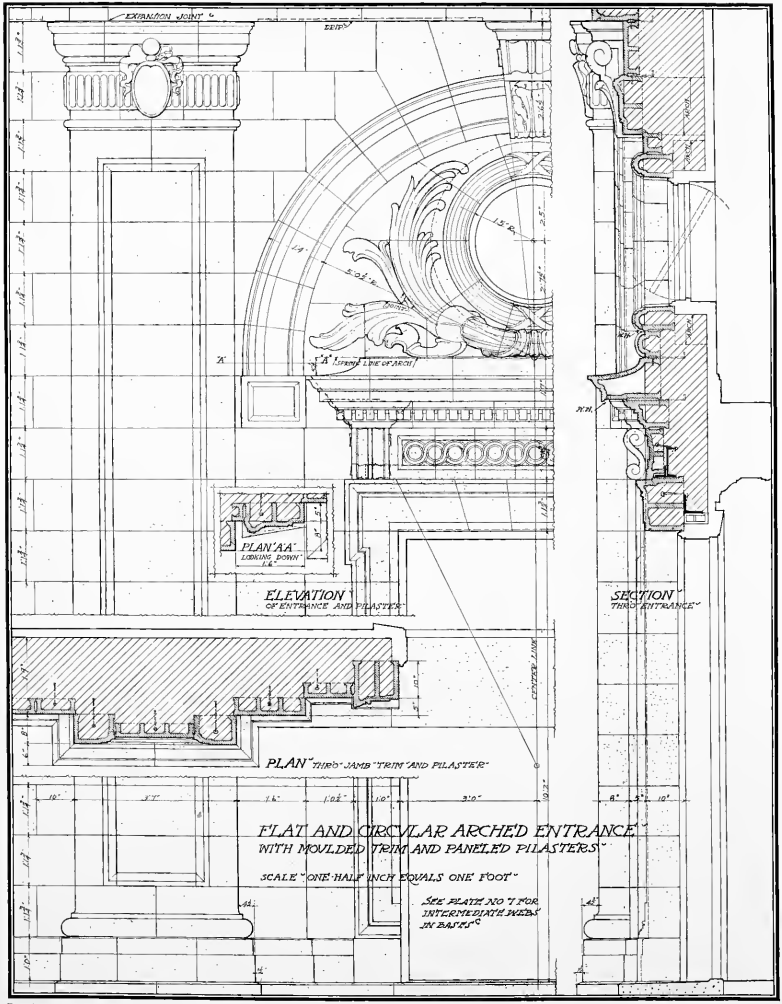
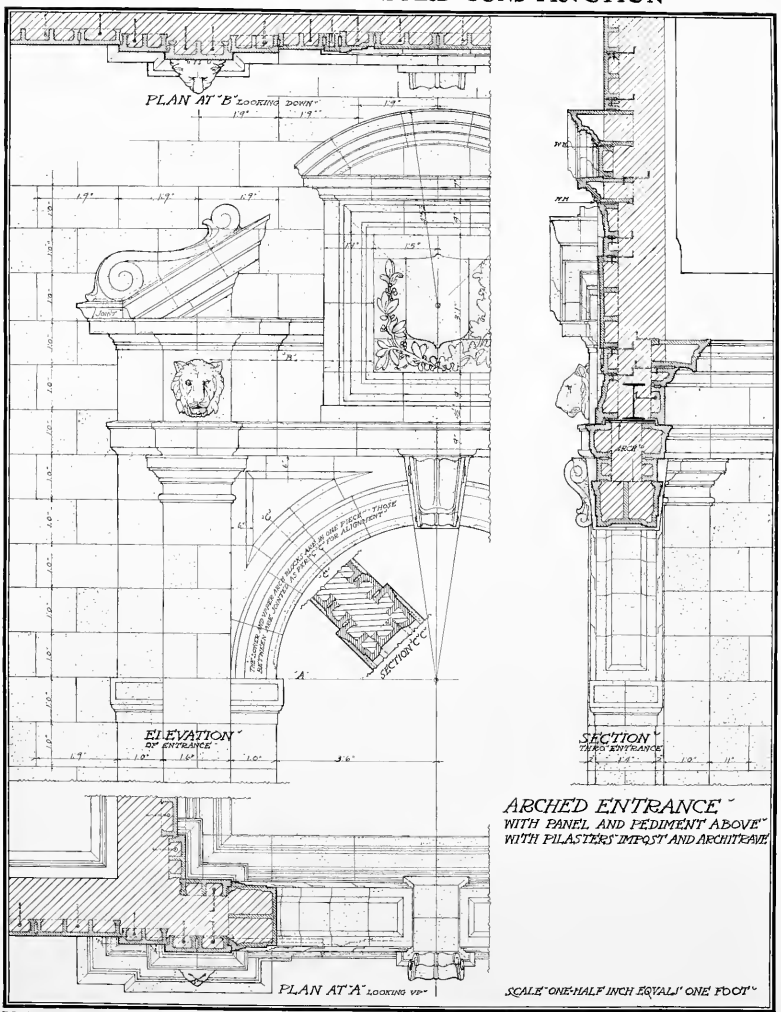
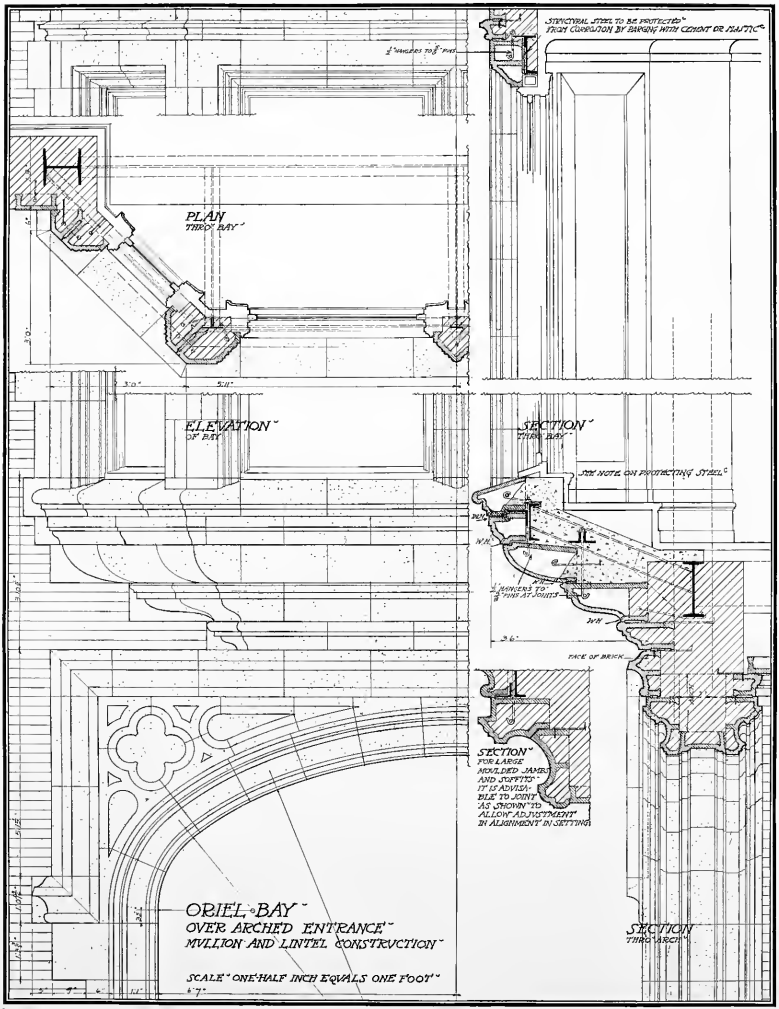

ENTRANCE
WITH ENGAGED COLUMNS
WITH SEGMENTAL PEDIMENT
WITH RUSTICATED ASHLAR
ENGAGED COLUMNS SHOULD BE JOINTED AT WALL AT POINT OF ENGAGEMENT TO PREVENT VENEERAL SUBSIDENCE AND TO ALLOW ADJUSTMENT IN ALIGNMENT
PLAN
THRO' NECK OF COLUMNS
LOOKING UP
STANDING SEAT
ALTERNATE
JOINT
INSCRIPTION
EXPANSION JOINT
SEE PLATES NOS 51 TO 55
STRUCTURAL STEEL TO BE PROTECTED FROM CORROSION BY PARGING WITH CEMENT OR PASTIC
CENTER LINE
ELEVATION
RUSTICATION ON COLUMNS TENDS TO CONCEAL HORIZONTAL JOINTS AND PERMITS OF LARGER DRUMS WITHOUT VERTICAL JOINTS
SECTION
ON CENTER LINE
SCALE ONE-HALF INCH EQUALS ONE FOOT
JOINTED VERTICALLY TO ALLOW ADJUSTMENT IN ALIGNMENT IN SETTING
SEE PLATE NO 7 FOR INTERMEDIATE PIERS IN BASES

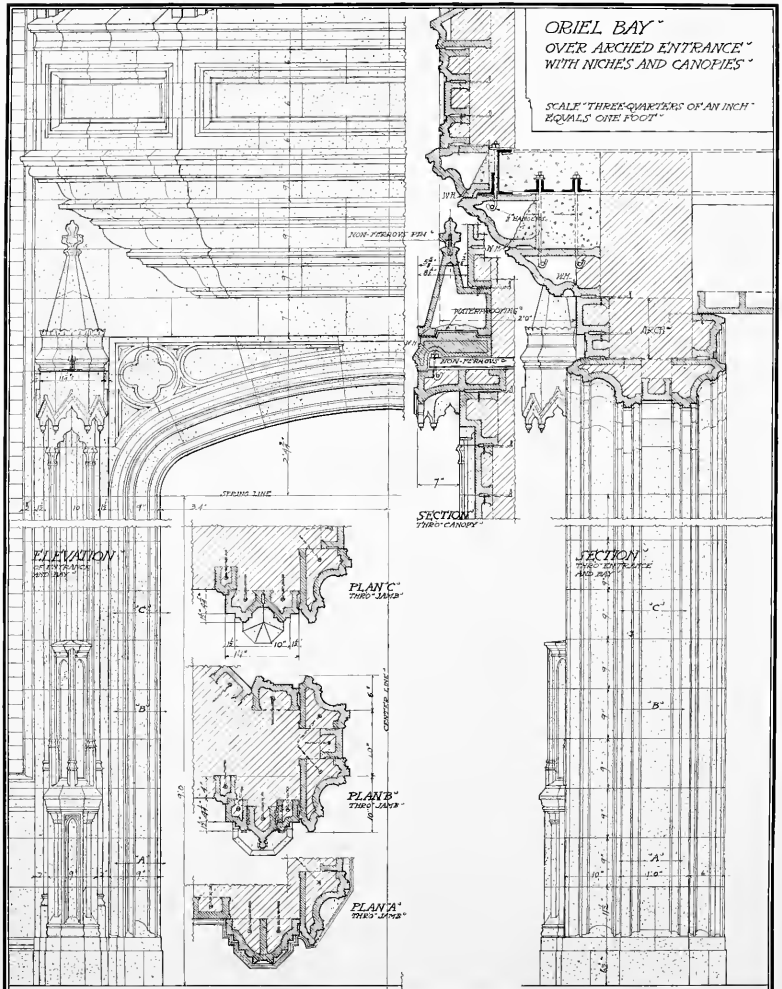

EXPANSION JOINT
ZEITH
'A' (CENTRE LINE OF ARCH)
PLAN 'AA' LOOKING DOWN
ELEVATION OF ENTRANCE AND PILASTER
SECTION THRO' ENTRANCE
PLAN THRO' JAMB TRIM AND PILASTER
FLAT AND CIRCULAR ARCH'D ENTRANCE
WITH MOULDED TRIM AND PANEL'D PILASTERS
SCALE "ONE-HALF INCH EQUALS ONE FOOT"
SEE PLATE NO 7 FOR INTERMEDIATE PIECES IN BASE

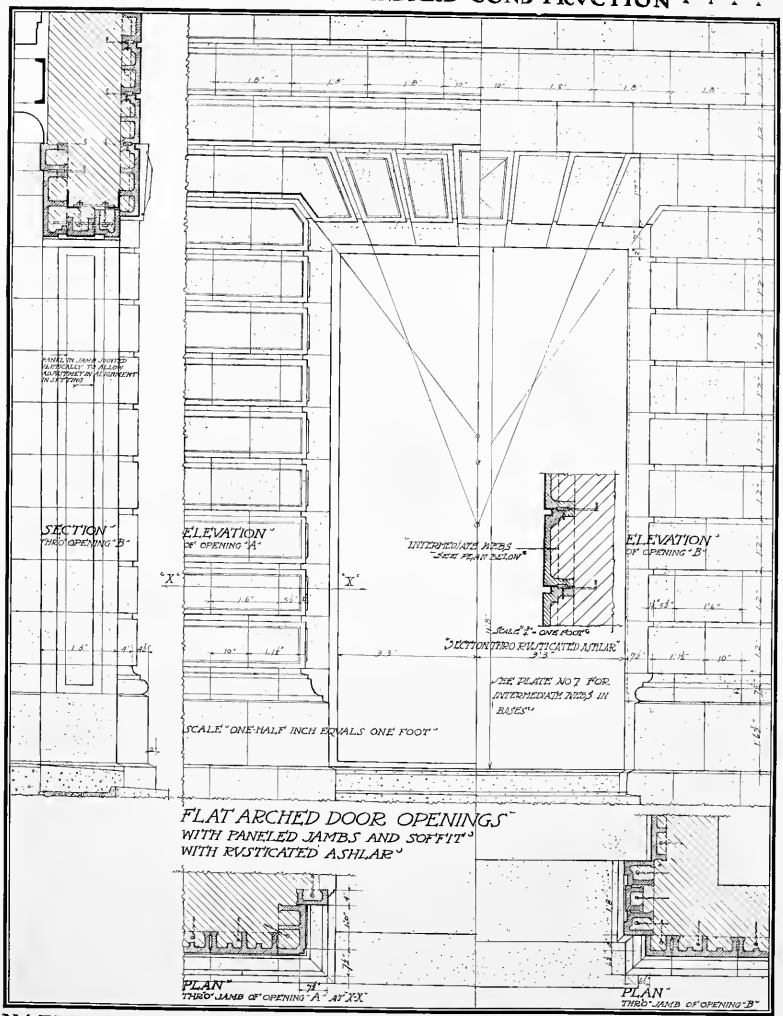


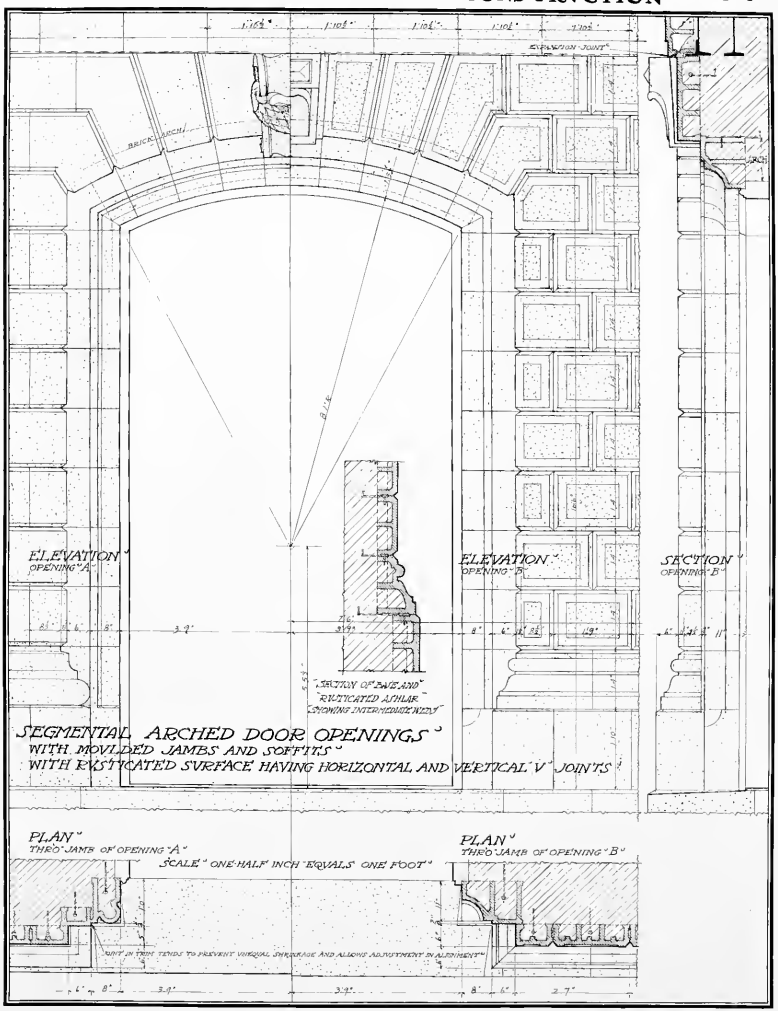
ARCHED ENTRANCE
WITH PANEL AND PEDIMENT ABOVE
WITH PILASTERS IMPOST AND ARCHITRAVE

SCALE ONE-HALF INCH EQUALS ONE FOOT

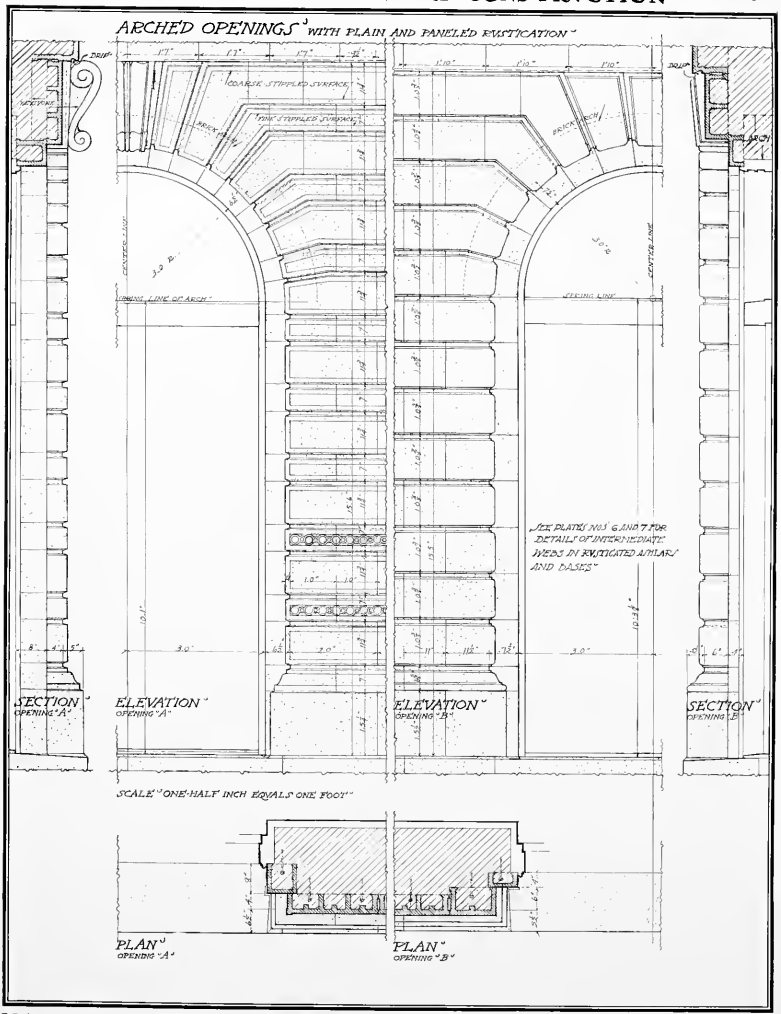

PLAN
THRU BAY
ELEVATION
OF BAY
SECTION
THRU BAY
SECTION
FOR LARGE MOULDED JAMBS AND SOFFITS IT IS DIVISIBLE TO JOINT AS SHOWN TO ALLOW ADJUSTMENT IN ALIGNMENT IN SETTING
SECTION
THRU ARCH
ORIEL BAY
OVER ARCHED ENTRANCE
MULLION AND LINTEL CONSTRUCTION
SCALE ONE HALF INCH EQUALS ONE FOOT
STRUCTURAL STEEL TO BE PROTECTED FROM CORROSION BY BARGING WITH CEMENT OR ITALITE
SEE NOTE ON PROTECTING STEEL
FACE OF BRICK

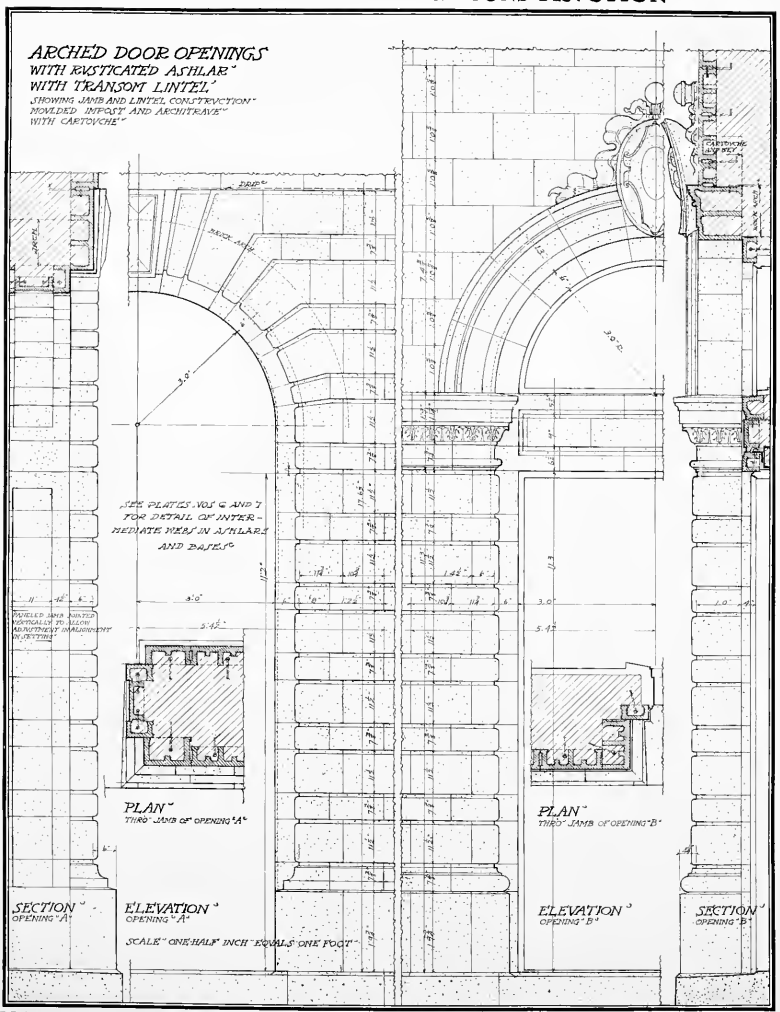

ORIEL BAY
OVER ARCHED ENTRANCE
WITH NICHES AND CANOPIES
SCALE "THREE-QUARTERS OF AN INCH" EQUALS ONE FOOT
NON-FERROUS PIN
WATERPROOFING
SECTION
THRO' CANOPY
SECTION
THRO' ENTRANCE AND JAMB
ELEVATION
OF ENTRANCE AND JAMB
SPRING LINE
PLAN "C"
THRO' JAMB
PLAN "B"
THRO' JAMB
PLAN "A"
THRO' JAMB
CENTER LINE
"A"
"B"
"C"


SECTION
THRO' OPENING "B"
ELEVATION
OF OPENING "A"
INTERMEDIATE RIBS
SEE PLAN BELOW
ELEVATION
OF OPENING "B"
"X"
"X"
RAILS 2" ONE FACE
SECTION THRO RUSTICATED ASHLAR
SEE PLATE NO 7 FOR
INTERMEDIATE RIBS IN
BASES
SCALE "ONE HALF INCH EQUALS ONE FOOT"
PANEL IN JAMB JOINTED
VERTICALLY TO ALLOW
CONTRACTION OF MOVEMENT
IN SETTING
FLAT ARCHED DOOR OPENINGS
WITH PANELED JAMBS AND SOFFIT
WITH RUSTICATED ASHLAR
PLAN
THRO' JAMB OF OPENING "A" AT XX
PLAN
THRO' JAMB OF OPENING "B"



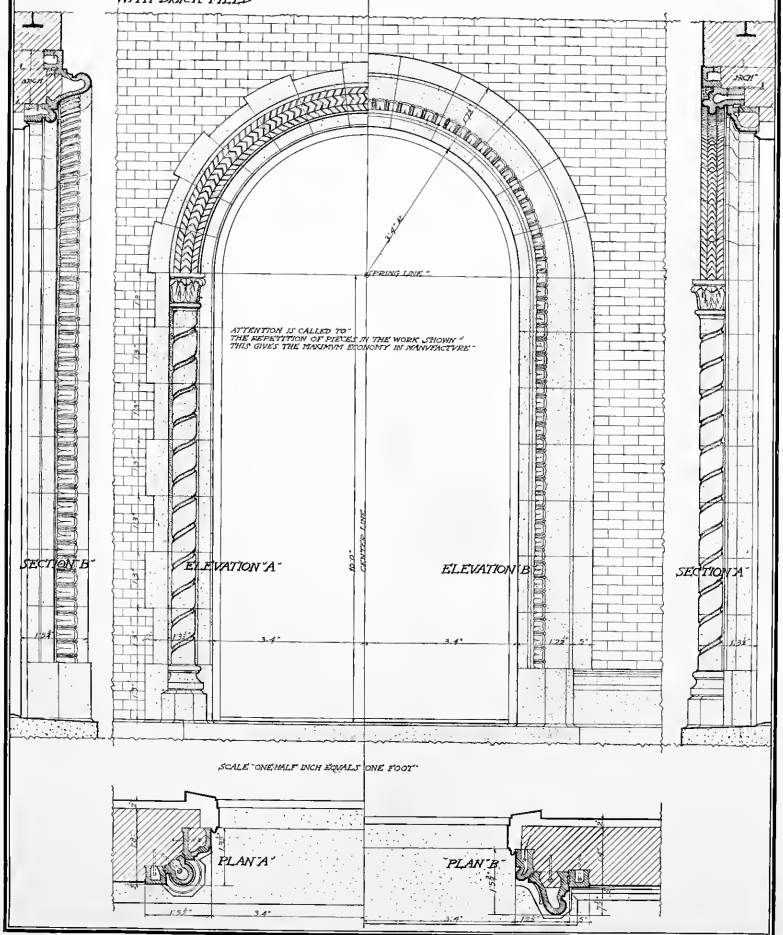
SEGMENTAL ARCHED DOOR OPENINGS
WITH MOULDED JAMBS AND SOFFITS
WITH RUSTICATED SURFACE HAVING HORIZONTAL AND VERTICAL "V" JOINTS


ARCHED OPENINGS WITH PLAIN AND PANELED RUSTICATION
COARSE STIPPLED SURFACE
FINE STIPPLED SURFACE
BRACKET LINE
CENTER LINE
SPRING LINE OF ARCH
CEILING LINE
DRIP
SEE PLATES NOS 6 AND 7 FOR DETAILS OF INTERMEDIATE WEBS IN RUSTICATED PILLARS AND BASES
SECTION OPENING "A"
ELEVATION OPENING "A"
ELEVATION OPENING "B"
SECTION OPENING "B"
SCALE "ONE-HALF INCH EQUALS ONE FOOT"
PLAN OPENING "A"
PLAN OPENING "B"

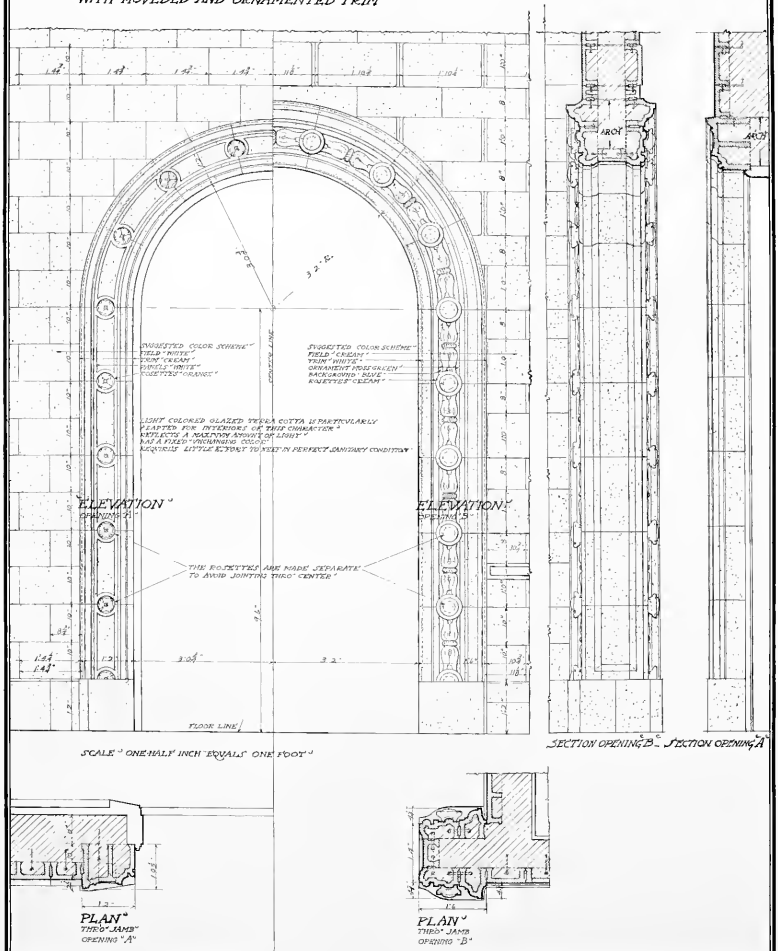

ARCHED DOOR OPENINGS
WITH RUSTICATED ASHLAR
WITH TRANSOM LINTEL
SHOWING JAMB AND LINTEL CONSTRUCTION
MOULDED INFRAST AND ARCHITRAVE
WITH CARTOUCHE
SEE PLATES NOS 6 AND 7 FOR DETAIL OF INTERMEDIATE REBS IN ASHLARS AND BASES
PANELED JAMB JOINTED VERTICALLY TO ALLOW ADJUSTMENT IMMEDIATELY IN SETTING
PLAN
THIRD JAMB OF OPENING A
PLAN
THIRD JAMB OF OPENING B
SECTION
OPENING A
ELEVATION
OPENING A
ELEVATION
OPENING B
SECTION
OPENING B
SCALE ONE-HALF INCH EQUALS ONE FOOT

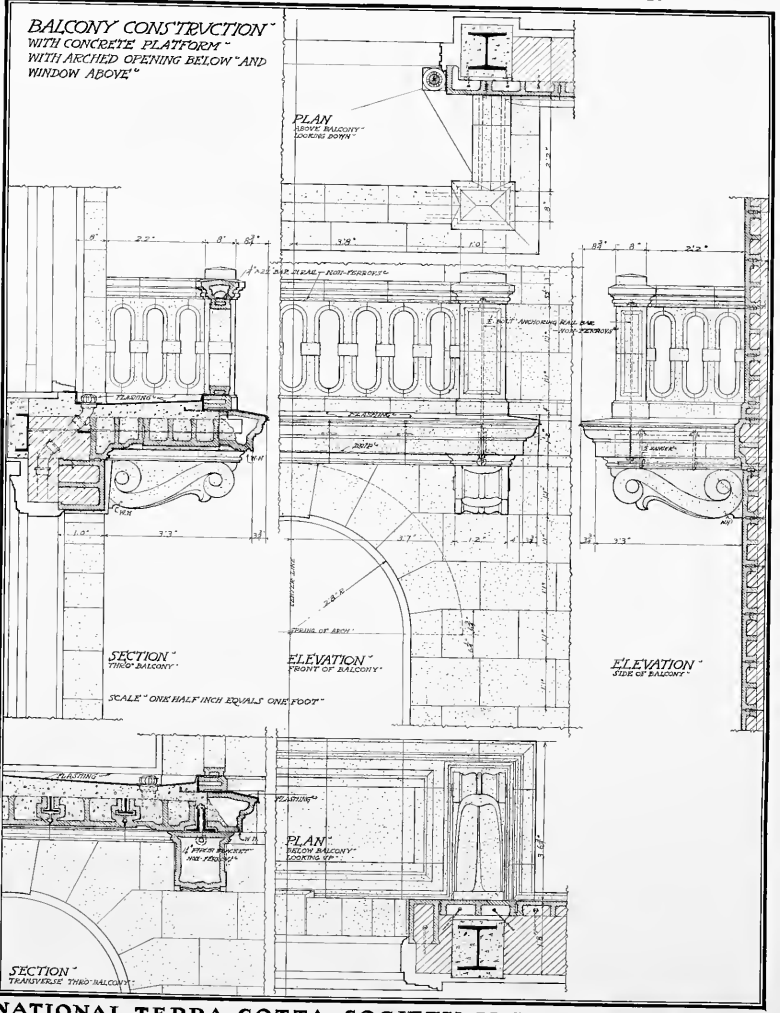
ARCHED OPENINGS

WITH MOULDED AND ORNAMENTED TRIM
WITH BRICK FIELD

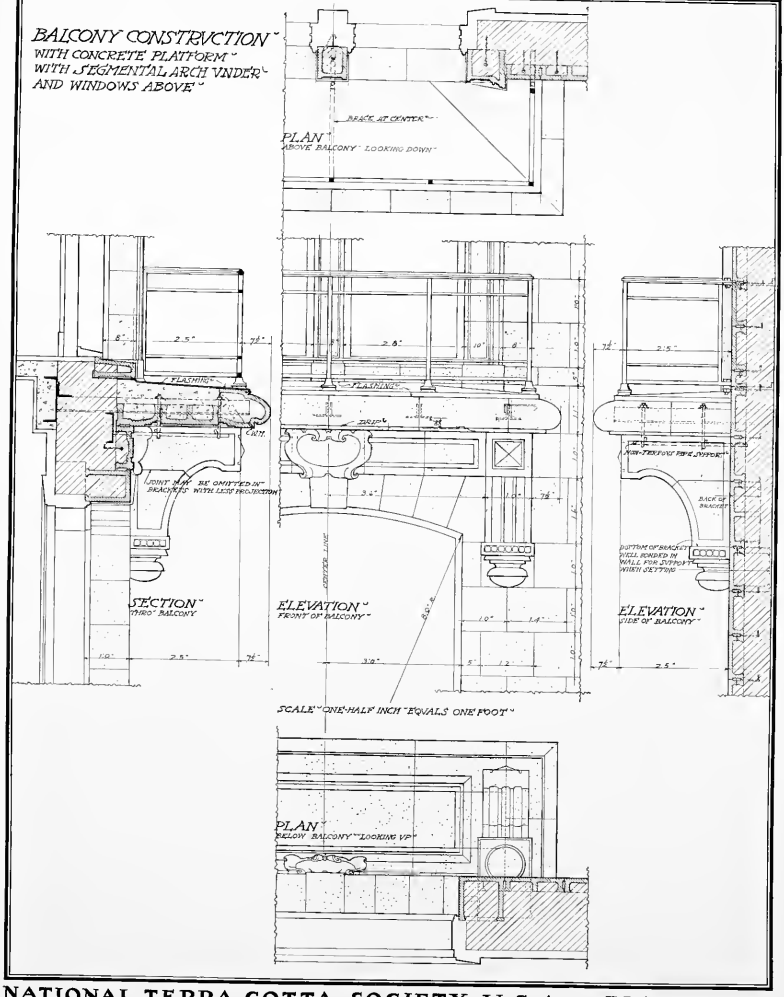


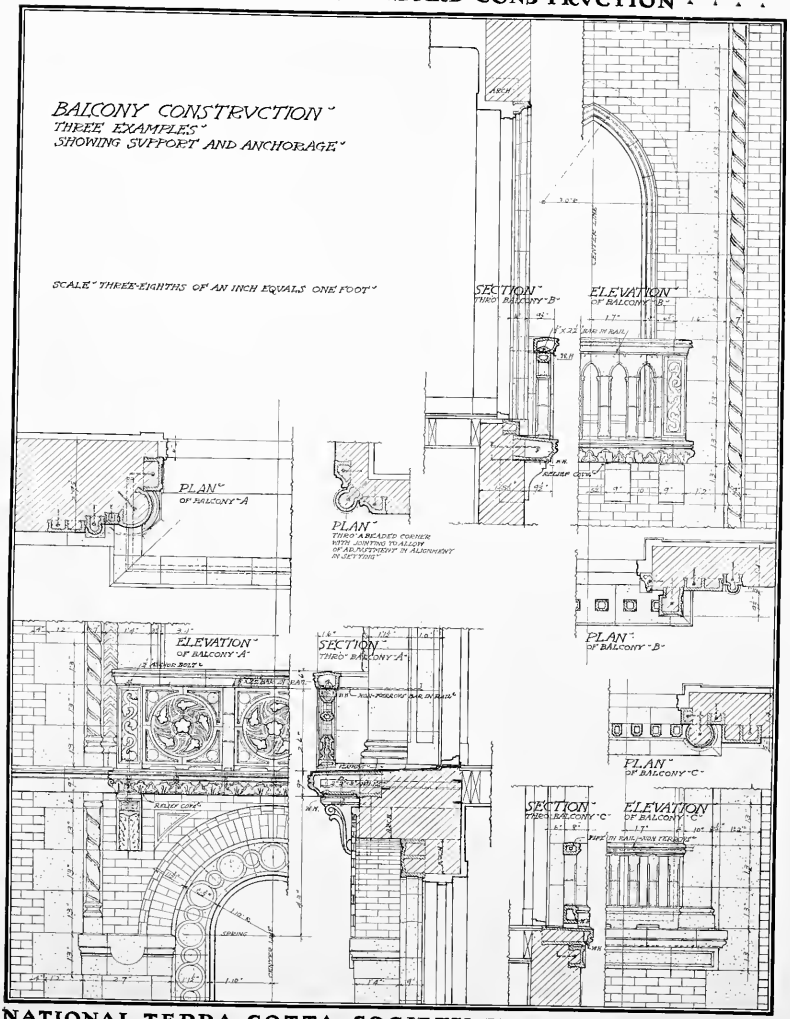
ARCHED OPENINGS
WITH MOULDED AND ORNAMENTED TRIM



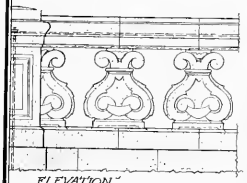

BALCONY CONSTRUCTION
WITH CONCRETE PLATFORM
WITH ARCHED OPENING BELOW AND WINDOW ABOVE
PLAN
ABOVE BALCONY
LOOKING DOWN
SECTION
THRO BALCONY
ELEVATION
FRONT OF BALCONY
ELEVATION
SIDE OF BALCONY
SCALE ONE HALF INCH EQUALS ONE FOOT
PLAN
BELOW BALCONY
LOOKING UP
SECTION
TRANSVERSE THRO BALCONY

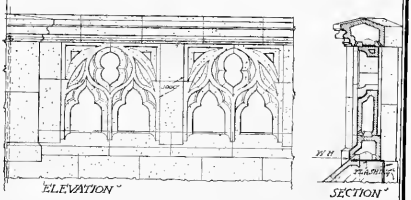
BALCONY CONSTRUCTION
WITH CONCRETE PLATFORM
WITH SEGMENTAL ARCH UNDER
AND WINDOWS ABOVE



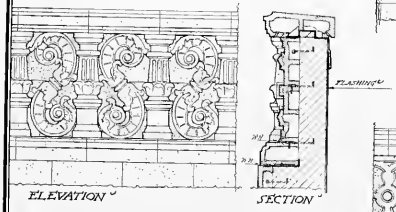

BALCONY CONSTRUCTION
THREE EXAMPLES
SHOWING SUPPORT AND ANCHORAGE
SCALE THREE-EIGHTHS OF AN INCH EQUALS ONE FOOT
SECTION THRO BALCONY B
ELEVATION OF BALCONY B
PLAN OF BALCONY A
PLAN
THRO A BEADED CORNER WITH JOINTING TO ALLOW OF ADJUSTMENT IN ALIGNMENT IN SETTING
PLAN OF BALCONY B
ELEVATION OF BALCONY A
SECTION THRO BALCONY A
PLAN OF BALCONY C
SECTION THRO BALCONY C
ELEVATION OF BALCONY C
RELIEF CONC
SPRING

BALUSTRADES & PARAPETS

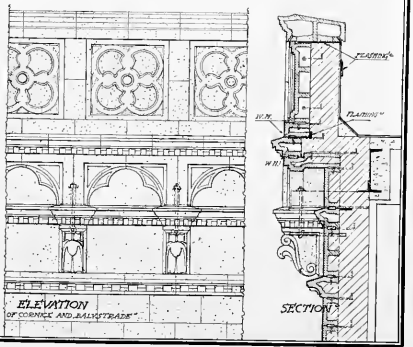




SCALE "ONE HALF INCH EQUALS ONE FOOT"

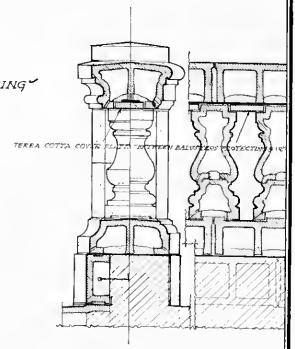


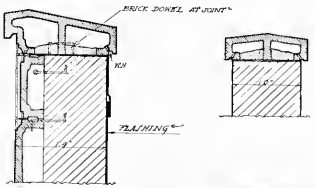
IN BALUSTRADES WITH SOLID BACK THE USE OF DARK COLORS IN THE FIELD OF PANELS WILL GIVE THE APPEARANCE OF PERFORATED WORK.

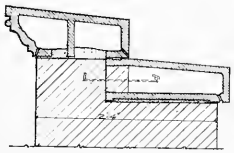


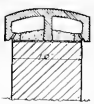
WALL COPINGS AND BALUSTRADES

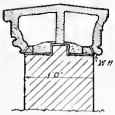
SHOWING VARIOUS METHODS OF JOINTING AND ANCHORING

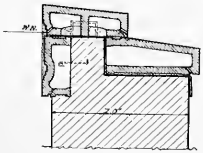


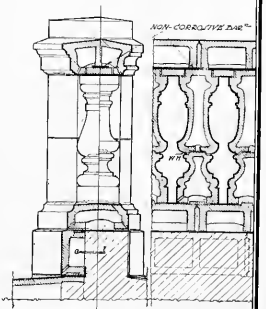






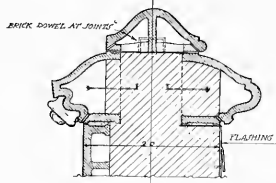


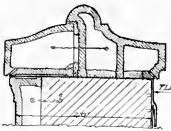




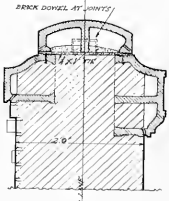
WHERE TERRA COTTA ASHLAR IS FIXED TO THICK PARAPET WALLS, THE ASHLAR SHALL BE LEFT UNFILLED AND SUPPLIED WITH WEEP HOLES

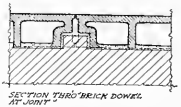
SCALE "THREE-QUARTERS OF AN INCH EQUALS ONE FOOT"



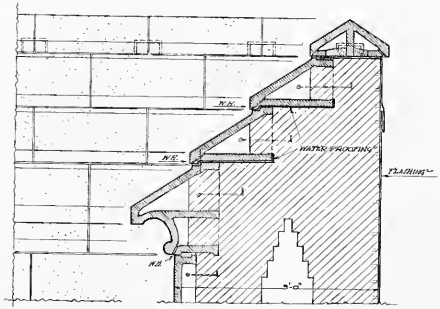


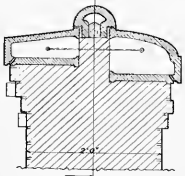
SCALE - THREE-QUARTERS OF AN INCH EQUALS ONE FOOT





SECTION THRO' BRICK DOWEL AT JOINT





THE PROFILE OF EACH COPING IS UNDER BOTH SIDES OF CENTER LINE FOR SUGGESTING POSSIBILITIES

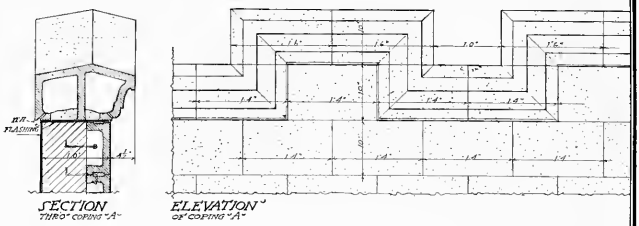
WHERE TERRA COTTA ASHLAR IS USED TO FACE PARAPET WALL, THE ASHLAR SHALL BE LEFT INSTALLED AND MORTAR WEEP HOLES

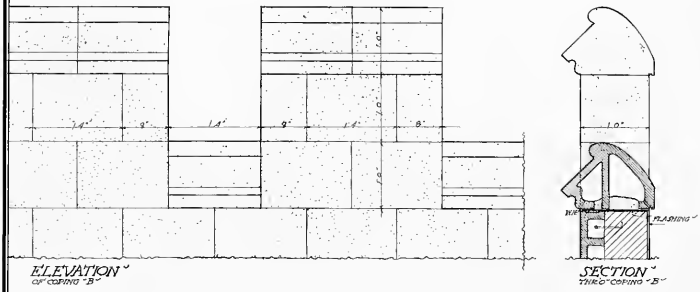
COPINGS

FOR WALL 2:0" AND MORE THICK

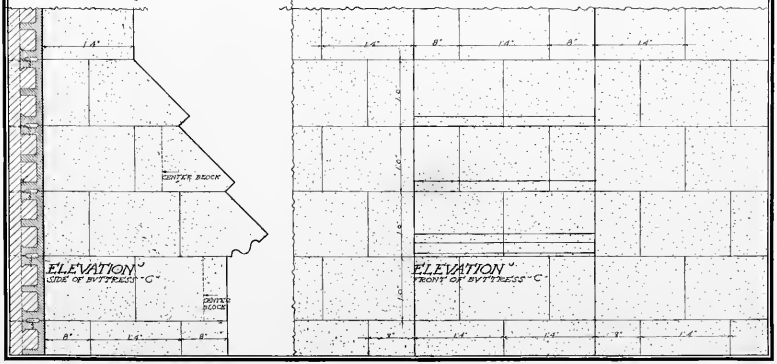
SHOWING VARIOUS METHODS OF JOINTING AND ANCHORING

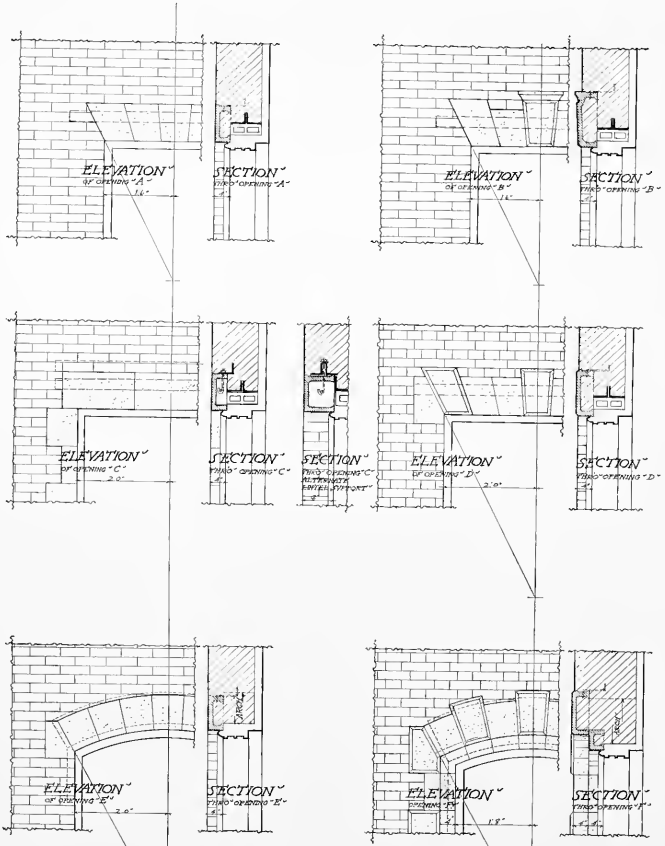
BATTLEMENTED COPING AND SET-OFFS





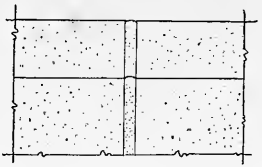
SCALE — THREE QUARTERS OF AN INCH EQUALS ONE FOOT



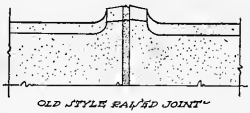


ARCH AND LINTEL TREATMENT
FOR SMALL AND MEDIUM SIZED OPENINGS
WITH BRICK FIELD

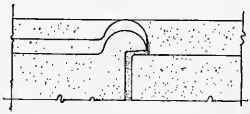
SCALE "ONE-HALF INCH EQUALS ONE FOOT"



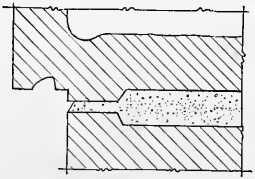
"STANDARD FLUSH JOINT" RECOMMENDED AS SUPERIOR TO THE OLD STYLE RAISED AND ROLL JOINTS SHOWN BELOW



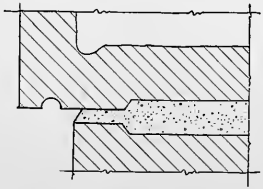
OLD STYLE RAISED JOINT



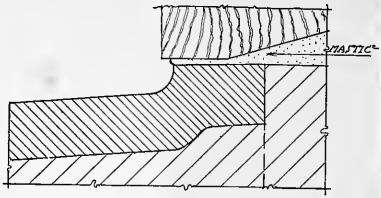
OLD STYLE ROLL JOINT



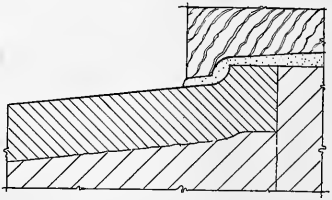
TYPICAL DRIP DETAILS



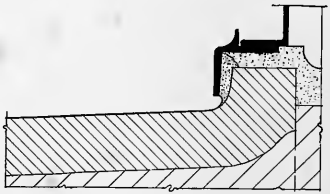
SCALE: HALF AND QUARTER FULL SIZE



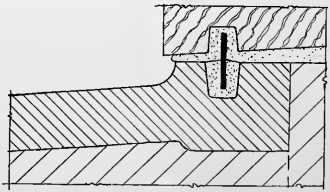
WOOD OR HOLLOW METAL SILLS



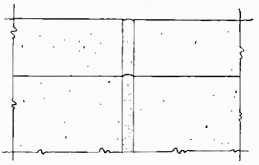
TUCK UNDER SILL



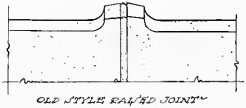
SILL FOR SOLID METAL FRAMES



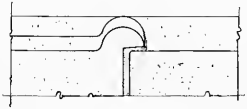
SILL WITH NON-FERROUS WATER BAR



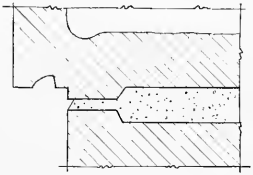
"STANDARD FLUSH JOINT" RECOMMENDED AS SUPERIOR TO THE OLD STYLE RAISED AND ROLL JOINTS SHOWN BELOW



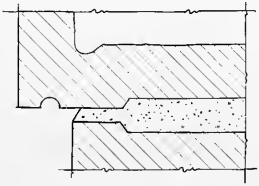
OLD STYLE RAISED JOINT



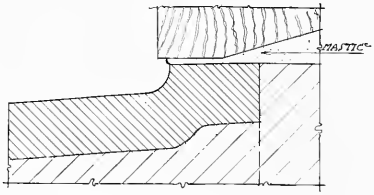
OLD STYLE ROLL JOINT



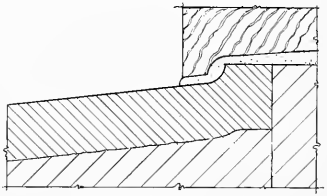
TYPICAL DRIP DETAILS



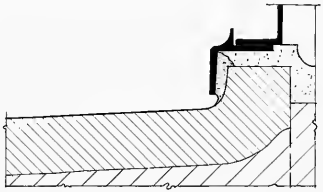
SCALE HALF AND QUARTER FULL SIZE



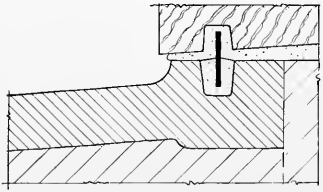
WOOD OR HOLLOW METAL SILLS



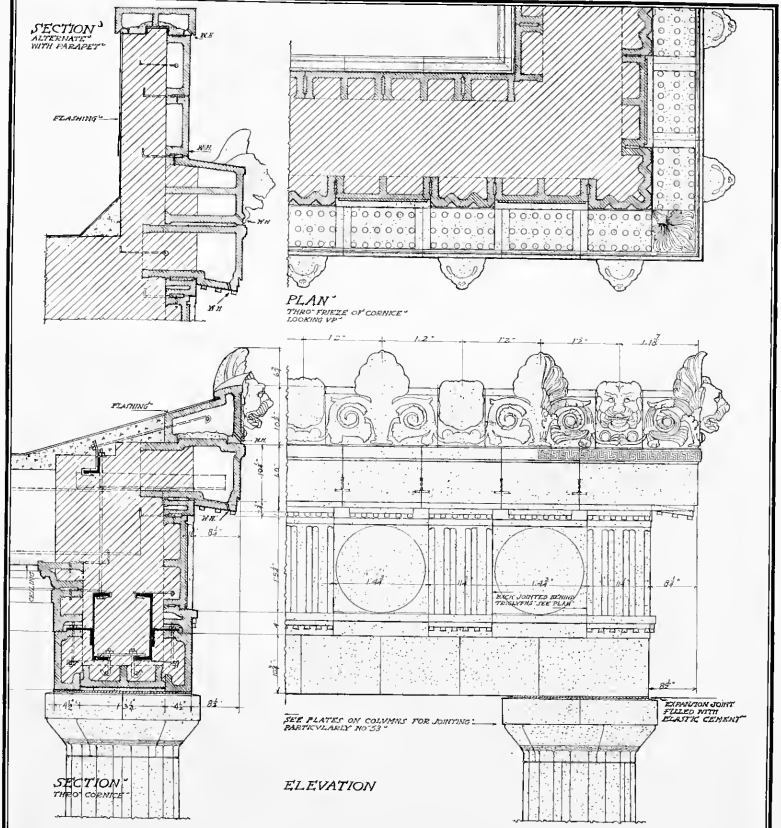
TUCK UNDER SILL



SILL FOR SOLID METAL FRAMES



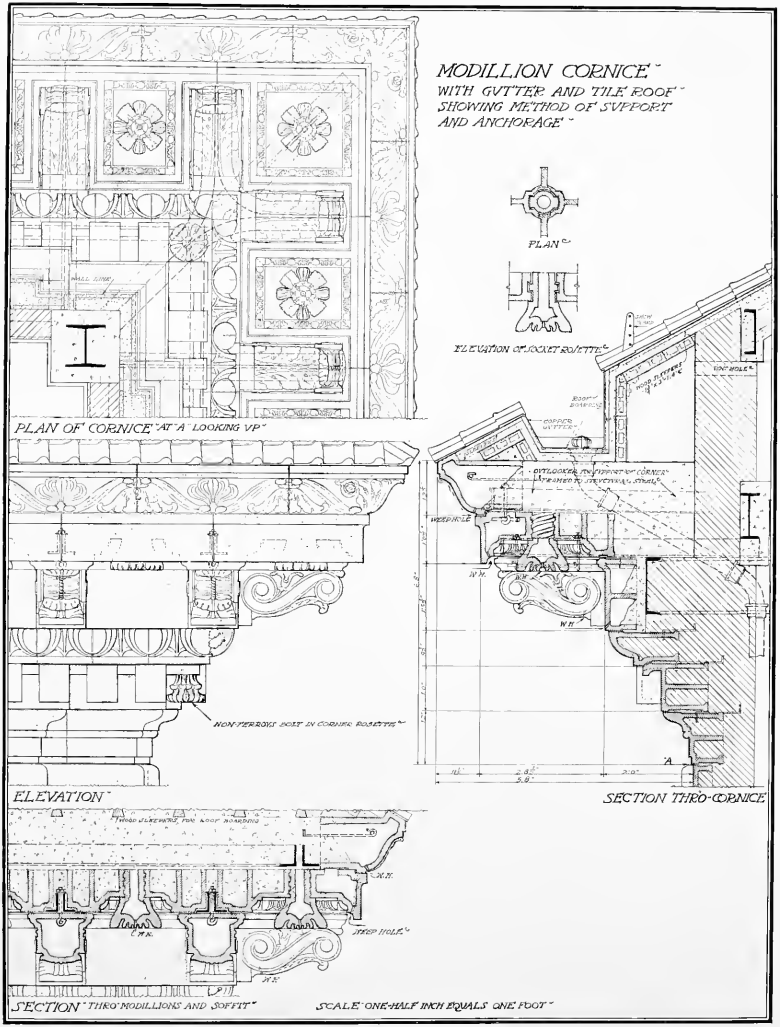
SILL WITH NON-FERROUS WATER BAR

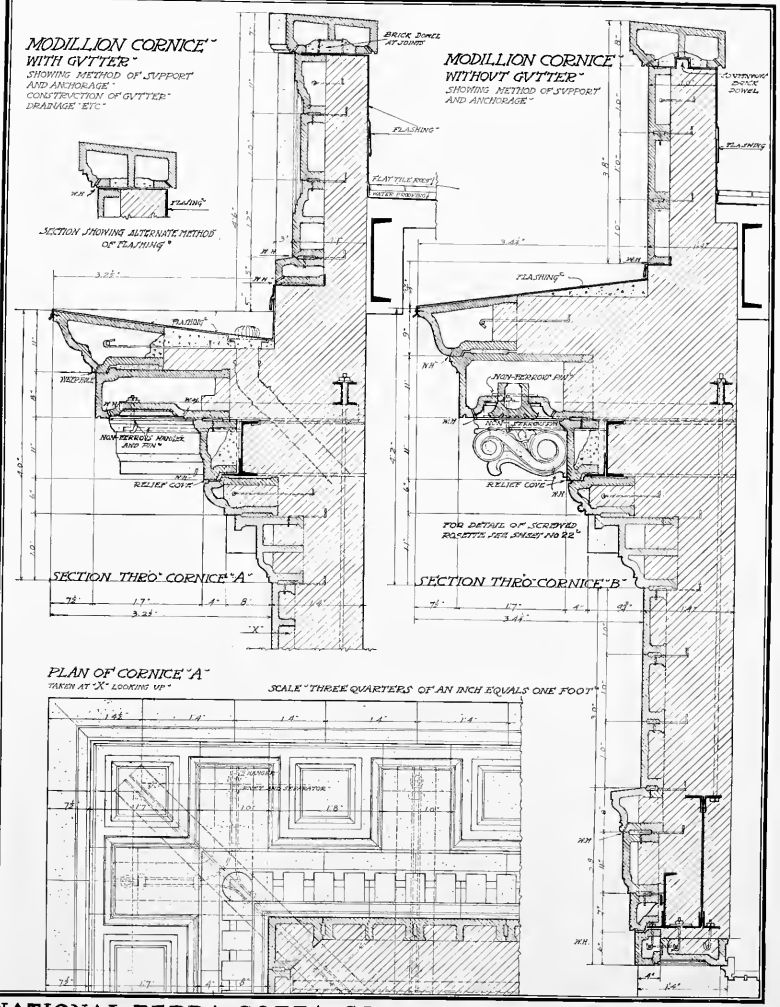


CORNICE

WITH CHENEAU · PANELED SOFFIT · ETC ·
SHOWING METHOD OF SUPPORT AND ANCHORAGE

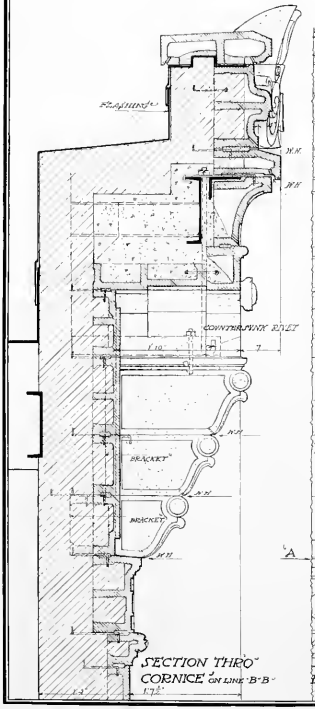
SCALE · THREE-QUARTERS OF AN INCH EQUALS ONE FOOT ·

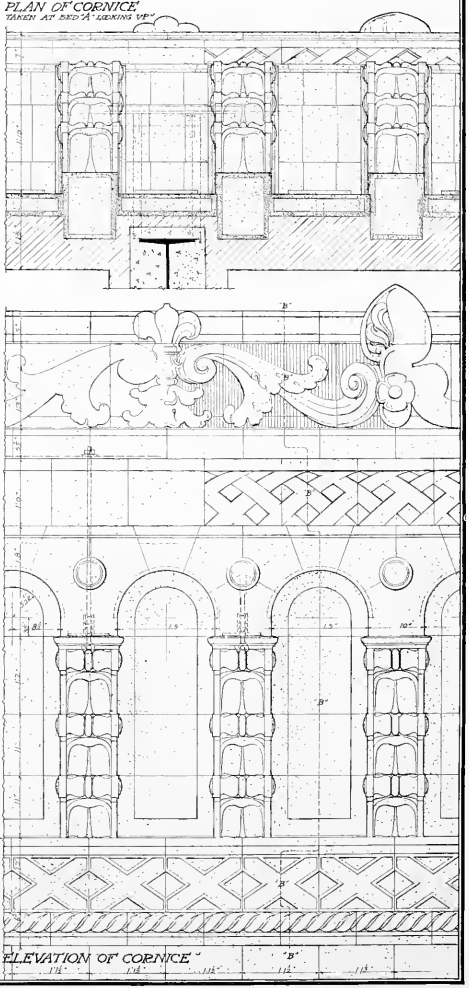

MODILLION CORNICE
WITH GUTTER AND TILE ROOF
SHOWING METHOD OF SUPPORT
AND ANCHORAGE
PLAN
ELEVATION OF SOCKET ROSETTE
PLAN OF CORNICE AT A LOOKING UP
NON-FERROUS BOLT IN CORNICE ROSETTE
ELEVATION
SECTION THRO CORNICE
SECTION THRO MODILLIONS AND SOFFIT
SCALE ONE-HALF INCH EQUALS ONE FOOT

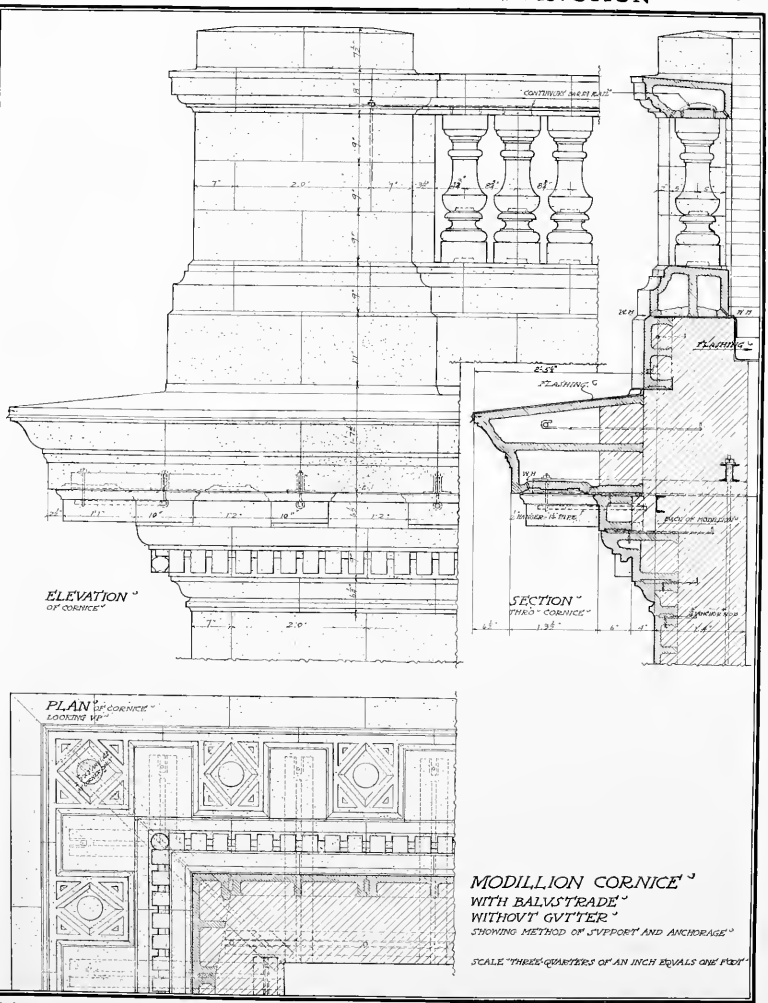

MODILLION CORNICE WITH GUTTER
SHOWING METHOD OF SUPPORT AND ANCHORAGE
CONSTRUCTION OF GUTTER
DRAINAGE ETC
BRICK DOWEL AT JOINT
FLASHING
FLAT TILE ROOF
WATER PROOFING
W.H.
FLASHING
SECTION SHOWING ALTERNATE METHOD OF FLASHING
MODILLION CORNICE WITHOUT GUTTER
SHOWING METHOD OF SUPPORT AND ANCHORAGE
CUTTING BRICK DOWEL
FLASHING
FLASHING
NON-FERROUS PINS
NON-FERROUS KNIVES AND PIN
RELIEF COVE
FOR DETAIL OF SCRIBED ROSETTE SEE SHEET NO 82
SECTION THRO' CORNICE "A"
SECTION THRO' CORNICE "B"
PLAN OF CORNICE "A"
TAKEN AT "X" LOOKING UP
SCALE "THREE QUARTERS" OF AN INCH EQUALS ONE FOOT

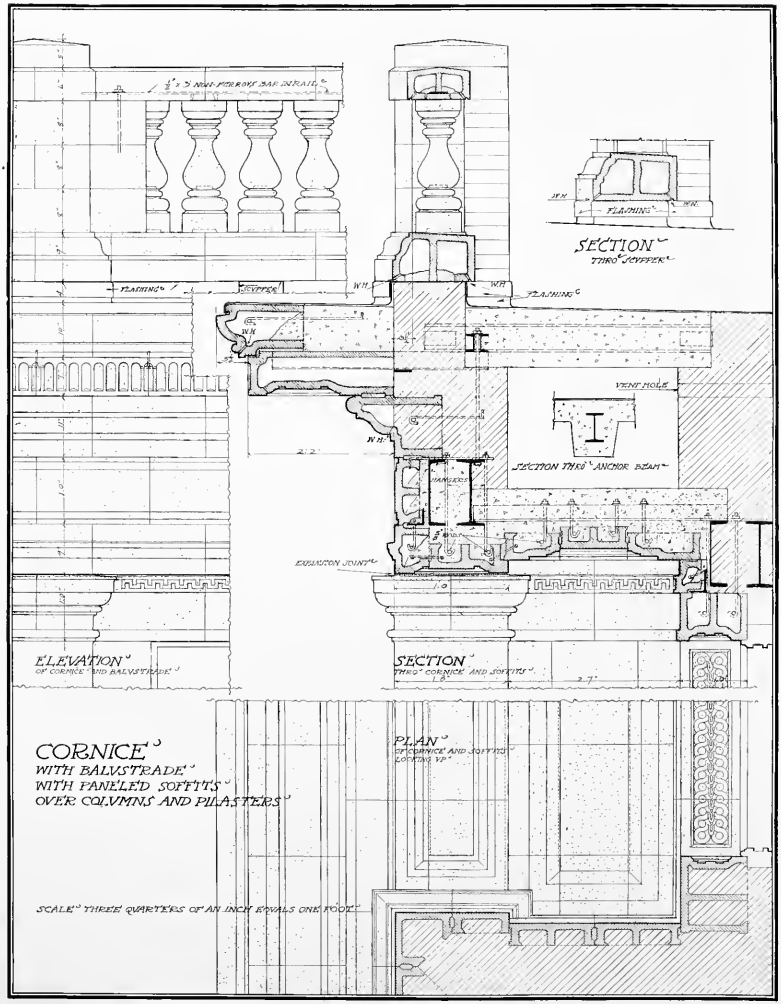
HEAVY BRACKETED CORNICE
WITH ORNAMENTED CHENEAU
SHOWING METHOD OF SUPPORT AND ANCHORAGE

SCALE THREE QUARTERS OF AN INCH EQUALS ONE FOOT



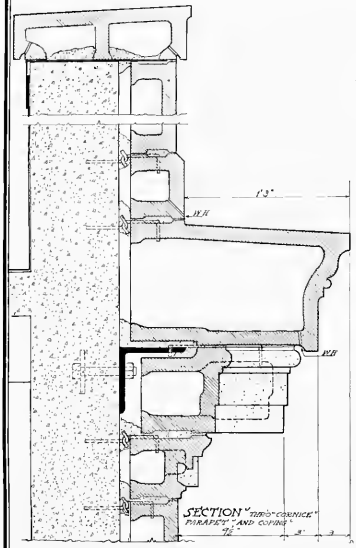



CONTINUOUS GUTTER
FLASHING
FLASHING
W.H.
W.H.
GUTTER-IS PIPE
BACK OF MODILLION
ELEVATION
OF CORNICE
SECTION
THRO' CORNICE
PLAN
OF CORNICE
LOOKING UP
MODILLION CORNICE
WITH BALUSTRADE
WITHOUT GUTTER
SHOWING METHOD OF SUPPORT AND ANCHORAGE
SCALE "THREE-QUARTERS OF AN INCH EQUALS ONE FOOT"

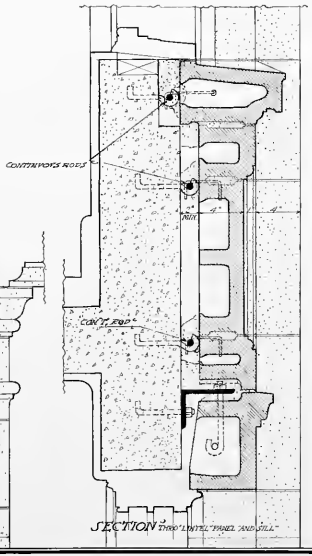

SECTION
THRO' COPPER
FLASHING
W.H.
COPPER
VENT HOLE
SECTION THRO' ANCHOR BEAM
EXPANSION JOINT
ELEVATION
OF CORNICE AND BALUSTRADE
SECTION
THRU' CORNICE AND SOFFITS
PLAN
OF CORNICE AND SOFFITS
LOOKING UP
CORNICE
WITH BALUSTRADE
WITH PANELED SOFFITS
OVER COLUMNS AND PILASTERS
SCALE THREE QUARTERS OF AN INCH EQUALS ONE FOOT

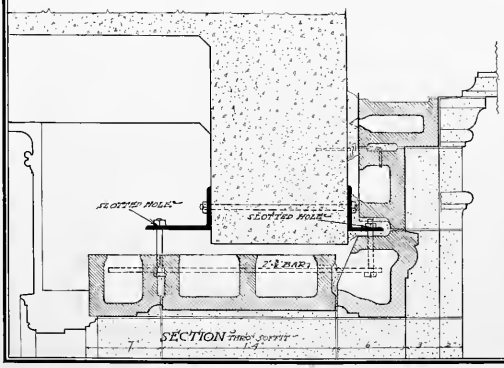
TERRA COTTA
APPLIED TO CONCRETE CONSTRUCTION
SHOWING METHOD OF SUPPORT AND ANCHORAGE

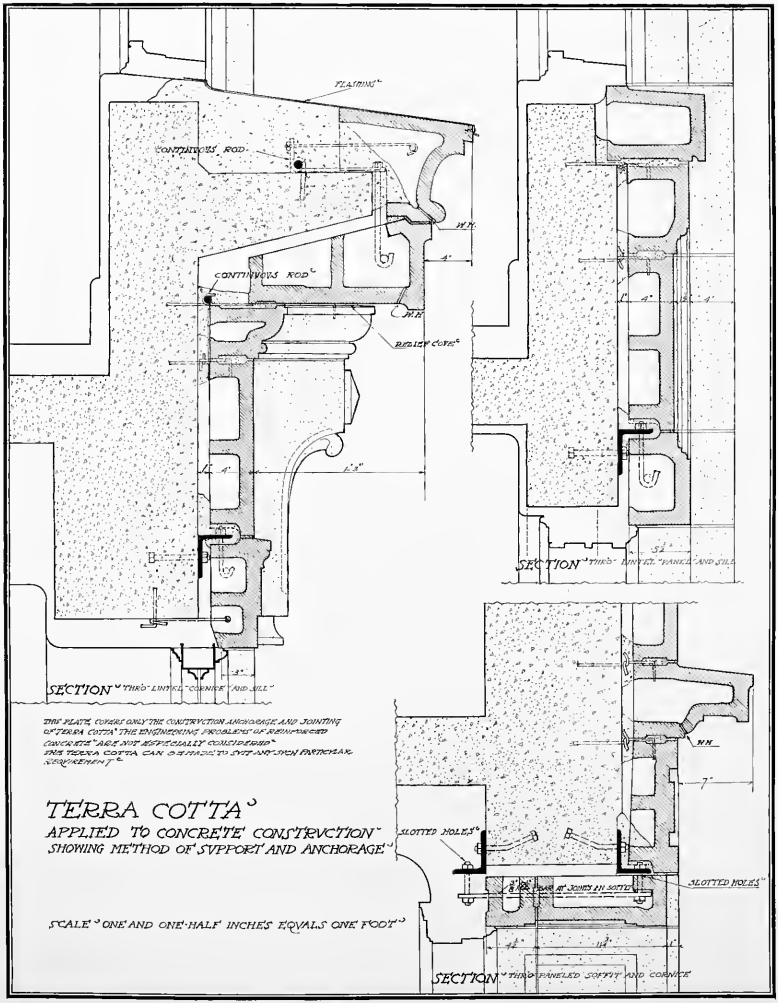
SCALE "ONE AND ONE-HALF" INCHES EQUALS ONE FOOT"



THIS PLATE COVERS ONLY THE CONSTRUCTION ANCHORAGE AND JOINTING OF TERRA COTTA" THE ENGINEERING PROBLEMS OF REINFORCED CONCRETE" ARE NOT ESPECIALLY CONSIDERED" THE TERRA COTTA CAN BE MADE TO SUIT ANY OTHER STRUCTURAL REQUIREMENT"





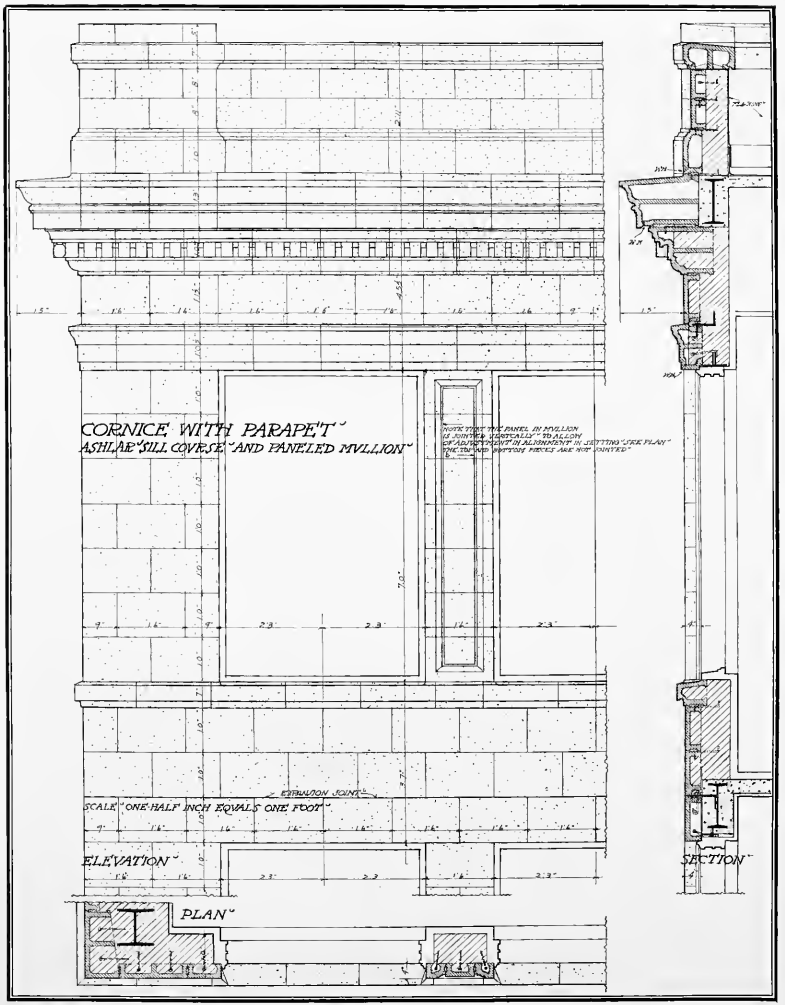


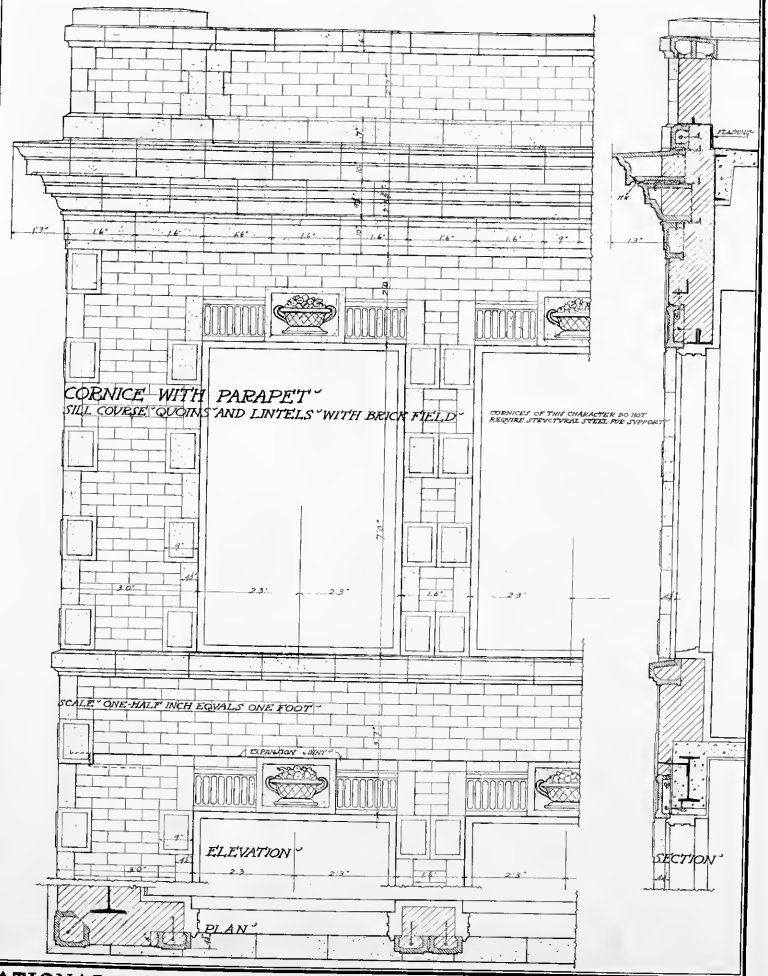
THIS PLATE COVERS ONLY THE CONSTRUCTION ANCHORAGE AND JOINTING OF TERRA COTTA. THE ENGINEERING REQUIREMENTS OF REINFORCED CONCRETE ARE NOT ESPECIALLY CONSIDERED. AS TERRA COTTA CAN BE MADE TO FIT ANY SUCH ENGINEERING REQUIREMENT.

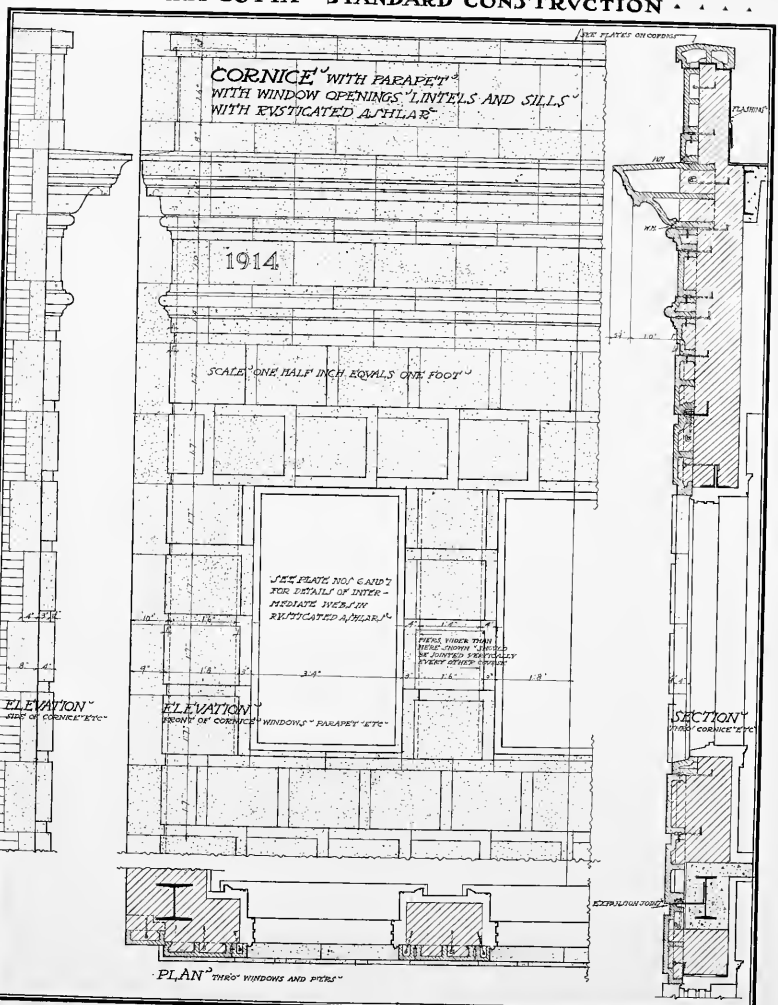
TERRA COTTA

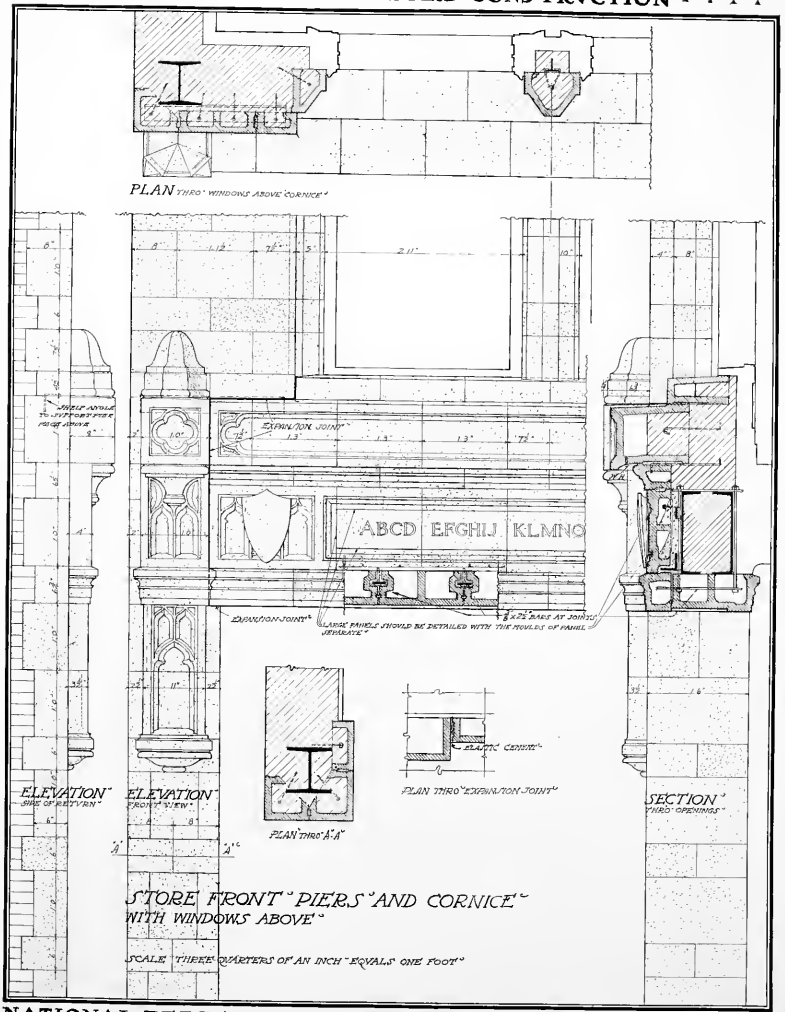
APPLIED TO CONCRETE CONSTRUCTION SHOWING METHOD OF SUPPORT AND ANCHORAGE

SCALE ONE AND ONE-HALF INCHES EQUALS ONE FOOT


CORNICE WITH PARAPET
ASHLAR SILL COVE SE AND PANELED MULLION
NOTE THAT THE PANEL IN MULLION IS JOINTED VERTICALLY TO ALLOW OF ADJUSTMENT IN ALIGNMENT IN SETTING THE PLAN
THE TRIANGULAR BOTTOM PIECES ARE NOT JOINTED
EXPANSION JOINT
SCALE ONE HALF INCH EQUALS ONE FOOT
ELEVATION
SECTION
PLAN

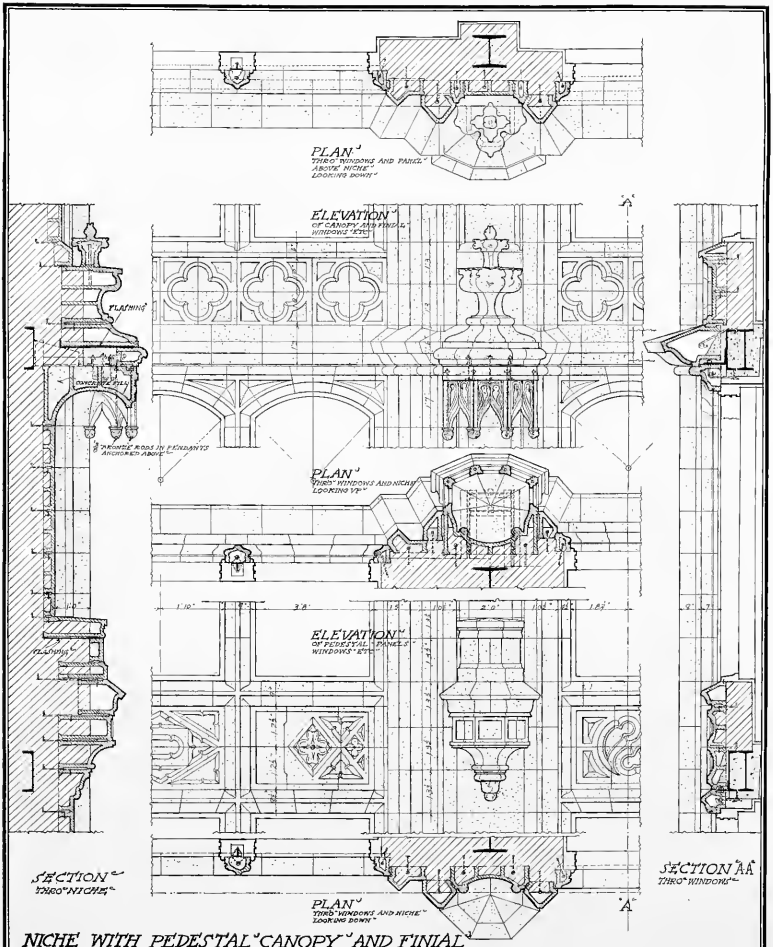

CORNICE WITH PARAPET
SILL COURSE QUOINS AND LINTELS WITH BRICK FIELD
CORNICES OF THIS CHARACTER DO NOT REQUIRE STRUCTURAL STEEL PIER SUPPORTS
SCALE ONE-HALF INCH EQUALS ONE FOOT
EXPANSION JOINT
ELEVATION
PLAN
SECTION


CORNICE "WITH PARAPET"
WITH WINDOW OPENINGS "LINTELS AND SILLS"
WITH RUSTICATED ASHLAR"
1914
SCALE "ONE HALF INCH EQUALS ONE FOOT"
SEE PLATES ON COPING
SEE PLATE NO. 6 AND 7 FOR DETAILS OF INTERMEDIATE WEB IN RUSTICATED ASHLAR"
THERE MIGHT BE JOINTED VERTICALLY EVERY OTHER COURSE
ELEVATION"
SIDE OF CORNICE" ETC"
ELEVATION"
FRONT OF CORNICE" WINDOWS" PARAPET" ETC"
SECTION"
THRU CORNICE" ETC"
EXPANSION JOINT
PLAN" THRU WINDOWS AND PIERS"



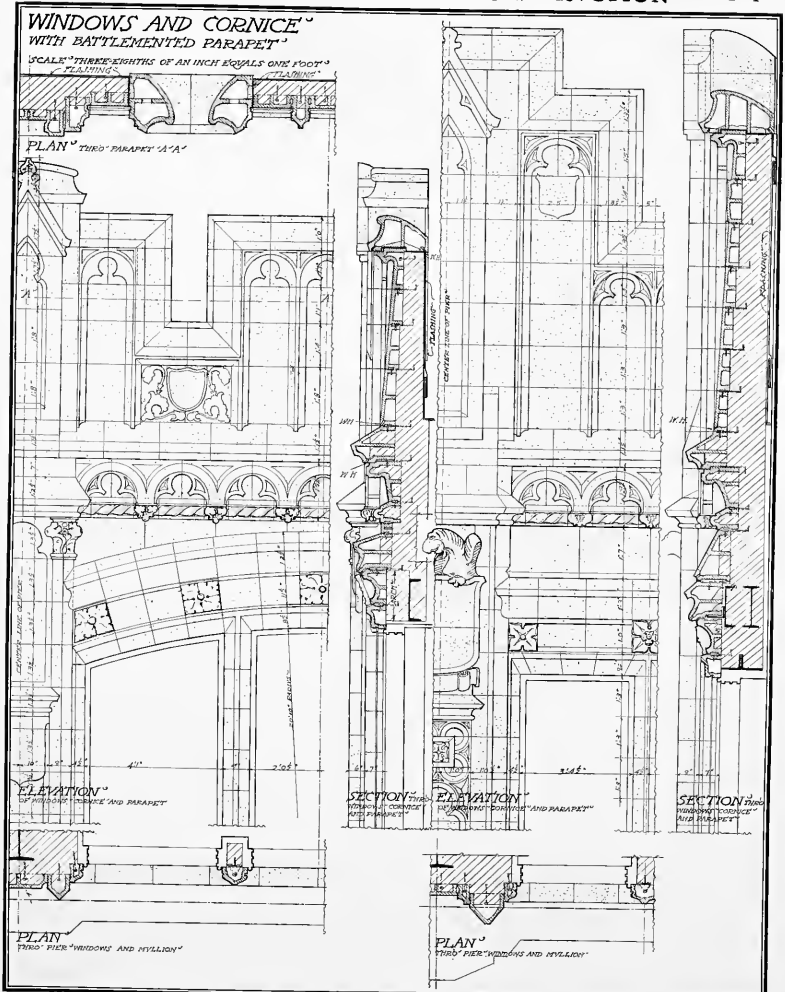
STORE FRONT PIERS AND CORNICE WITH WINDOWS ABOVE

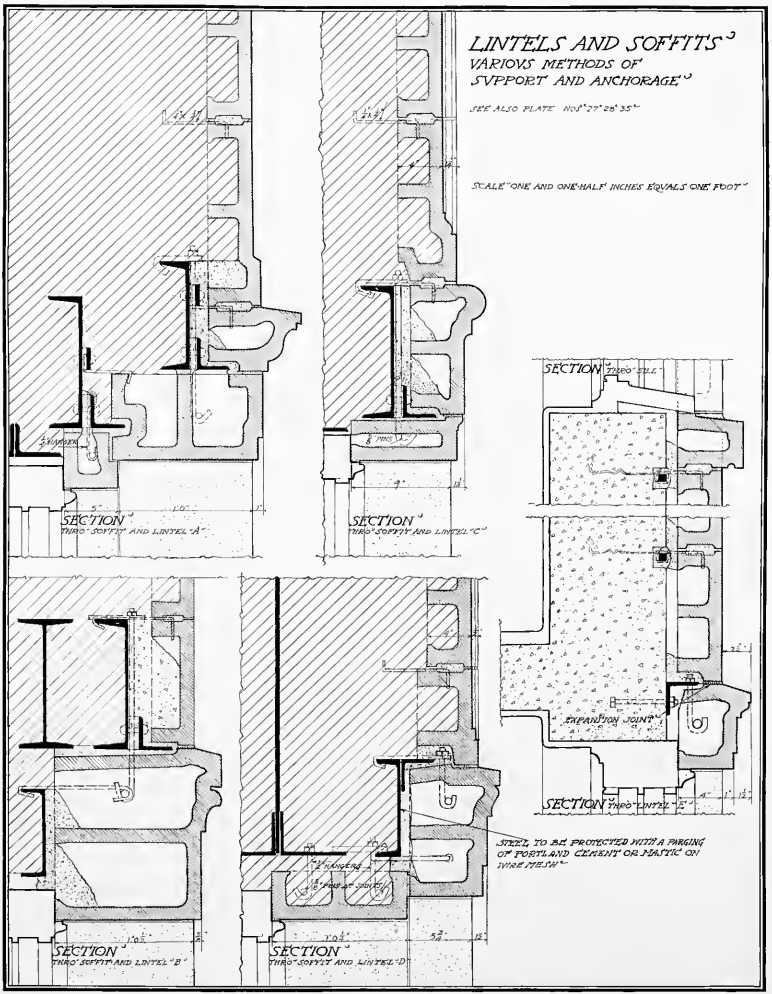
SCALE THREE QUARTERS OF AN INCH EQUALS ONE FOOT

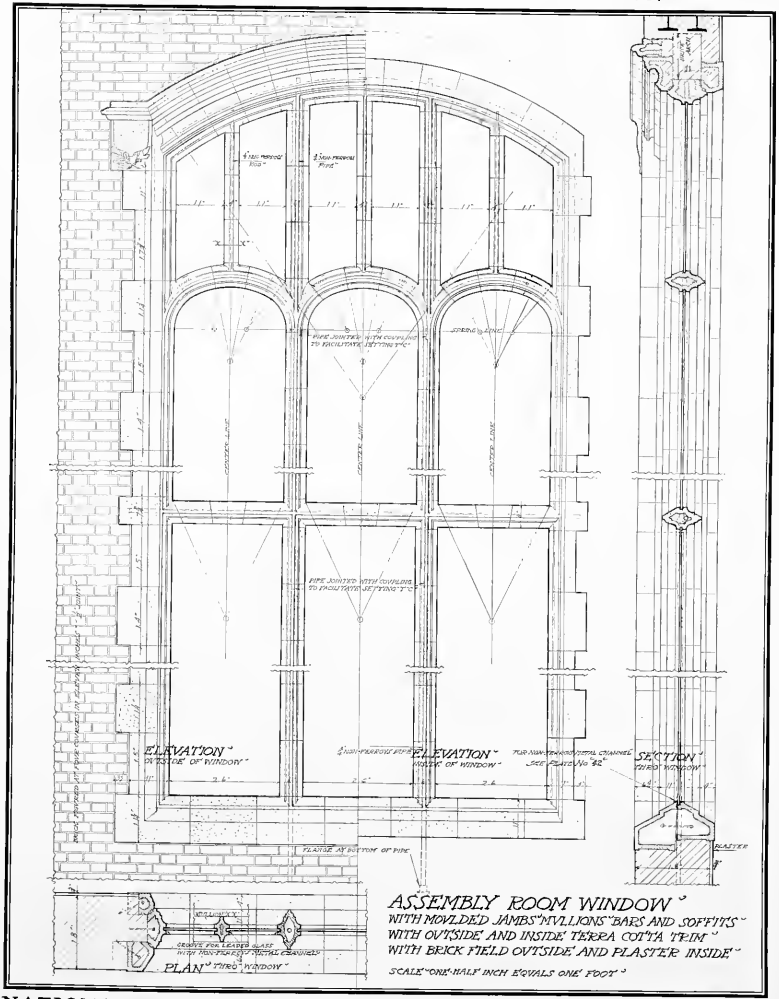


NICHE WITH PEDESTAL CANOPY AND FINIAL
WINDOWS WITH MOULDED JAMBS MULLIONS SILLS AND LINTELS

SCALE THREE-EIGHTHS OF AN INCH EQUALS ONE FOOT


WINDOWS AND CORNICE
WITH BATTLEMENTED PARAPET
SCALE "THIRTEE-EIGHTHS OF AN INCH EQUALS ONE FOOT"
FLASHING
PLAN "THIRD" PARAPET "A" A"
ELEVATION
OF WINDOW "CORNICE" AND PARAPET
PLAN
THIRD" PIER "WINDOWS AND MYLLION"
SECTION "THIRD"
WINDOW "CORNICE"
AND PARAPET"
ELEVATION
OF WINDOW "CORNICE" AND PARAPET"
PLAN
THIRD" PIER "WINDOWS AND MYLLION"
SECTION "THIRD"
WINDOW "CORNICE"
AND PARAPET"

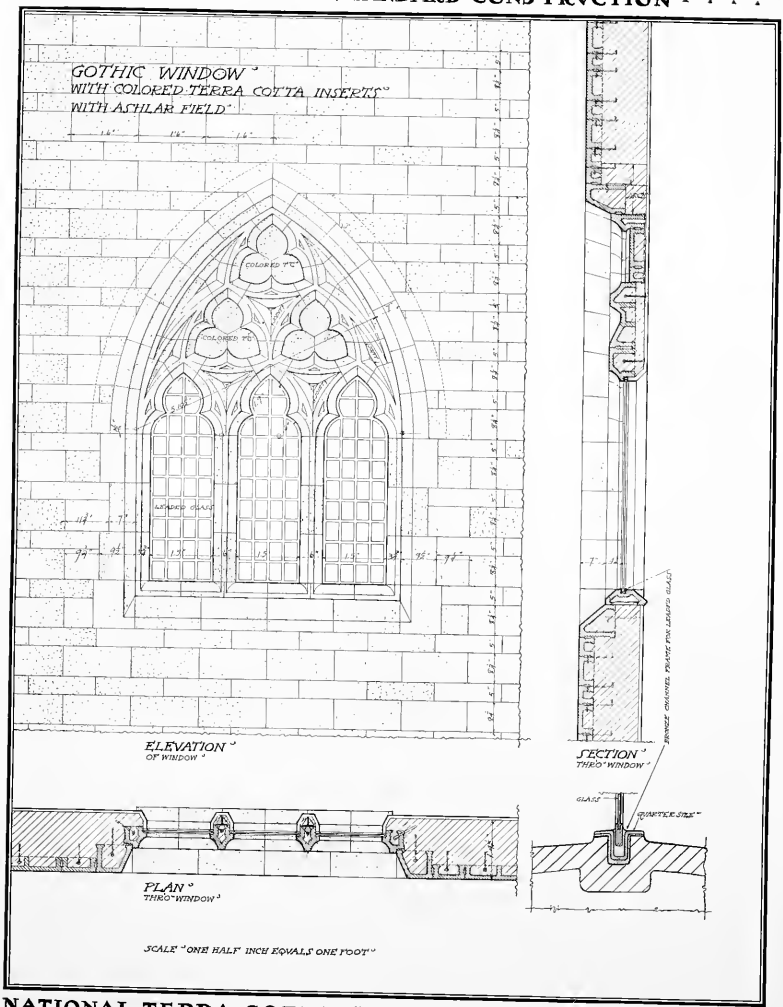

LINTELS AND SOFFITS
VARIOUS METHODS OF
SUPPORT AND ANCHORAGE
SEE ALSO PLATE NO'S 27, 28, 35
SCALE "ONE AND ONE-HALF INCHES EQUALS ONE FOOT"
SECTION
THRO' SOFFIT AND LINTEL "A"
SECTION
THRO' SOFFIT AND LINTEL "C"
SECTION
THRO' SILL
EXPANSION JOINT
SECTION
THRO' LINTEL
STEEL TO BE PROTECTED WITH A PARGING OF PORTLAND CEMENT OR MASTIC ON WIRE MESH
SECTION
THRO' SOFFIT AND LINTEL "B"
SECTION
THRO' SOFFIT AND LINTEL "D"

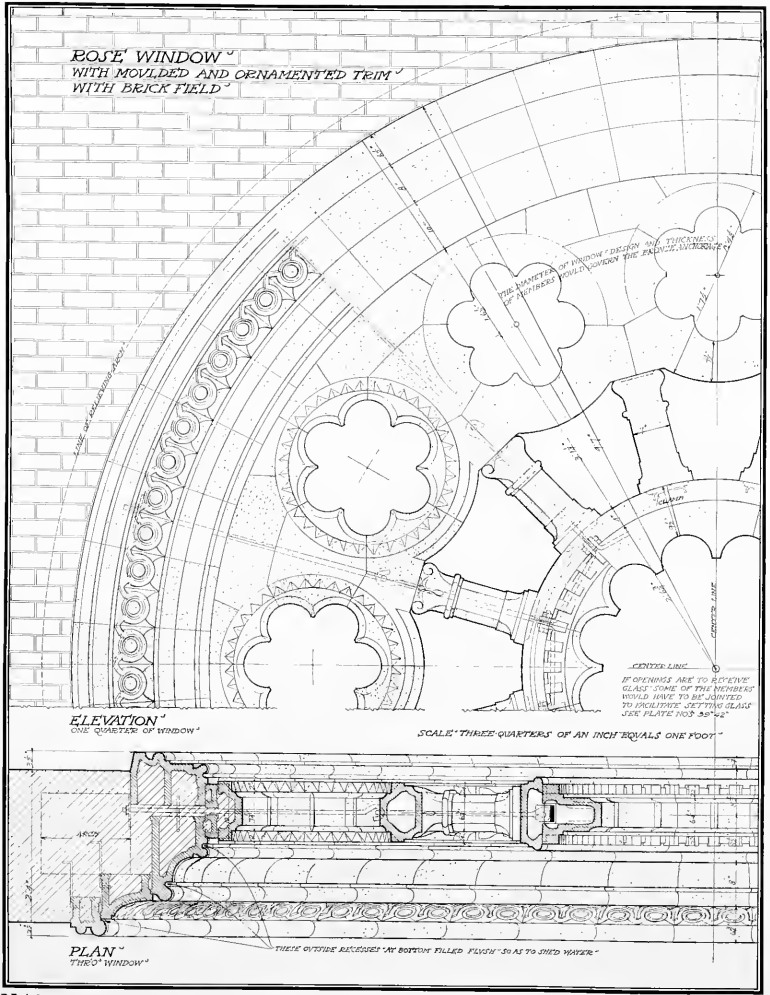


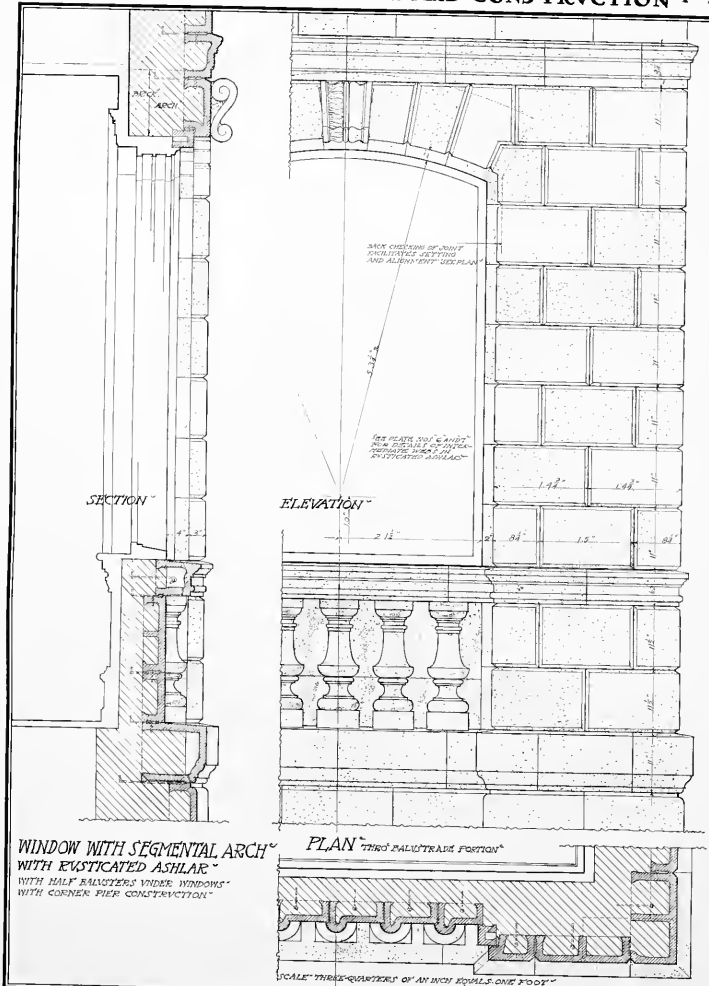
ASSEMBLY ROOM WINDOW"

WITH MOULDED JAMBS "MULLIONS "BARS AND SOFFITS"
WITH OUTSIDE AND INSIDE TERRA COTTA TRIM"
WITH BRICK FIELD OUTSIDE AND PLASTER INSIDE"

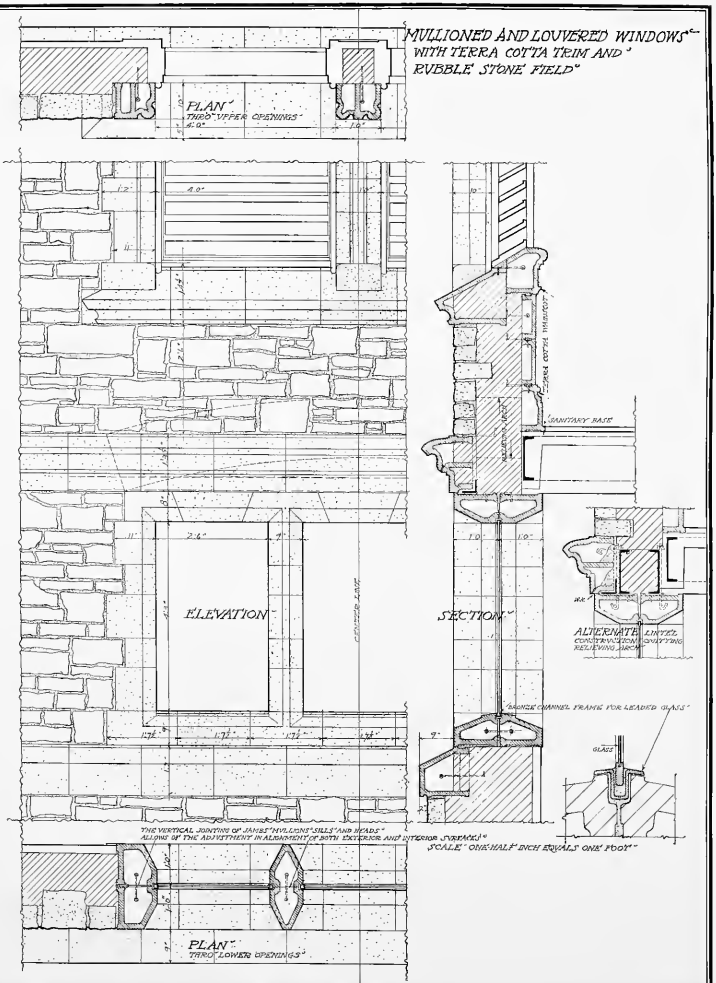
SCALE "ONE-HALF INCH EQUALS ONE FOOT"

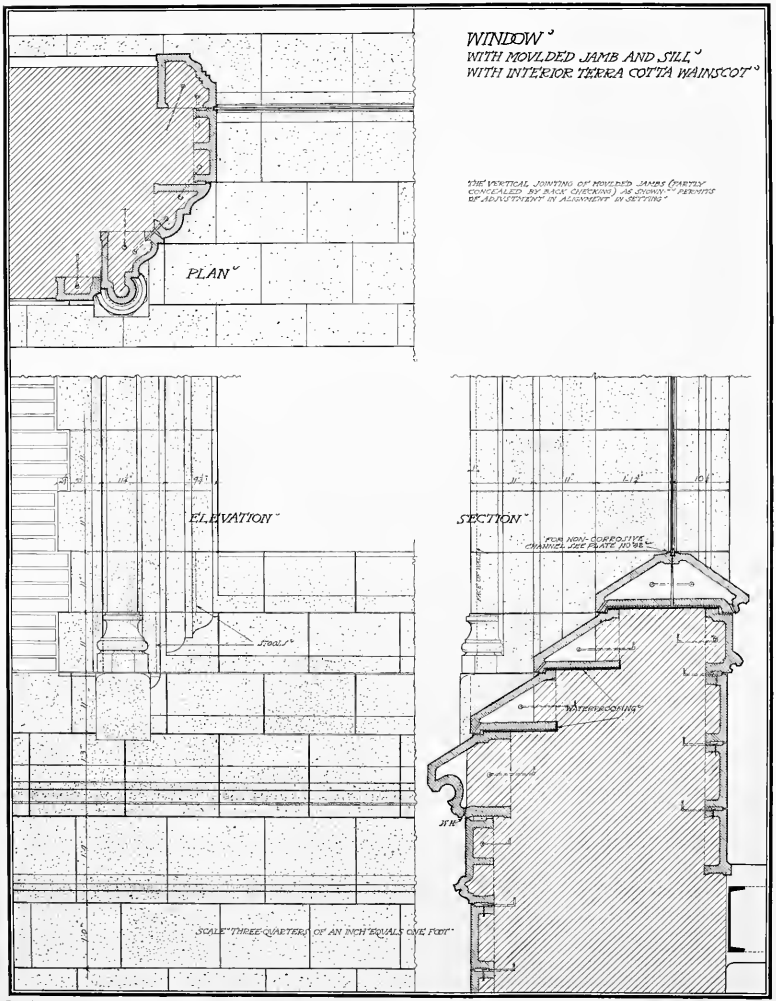

GOTHIC WINDOW
WITH COLORED TERRA COTTA INSERTS
WITH ASHLAR FIELD
COLORED TC
COLORED TC
LEADED GLASS
ELEVATION
OF WINDOW
SECTION
THRO WINDOW
BRONZE CHANNEL FRAME FOR LEADED GLASS
GLASS
TERRA COTTA SILL
PLAN
THRO WINDOW
SCALE ONE HALF INCH EQUALS ONE FOOT

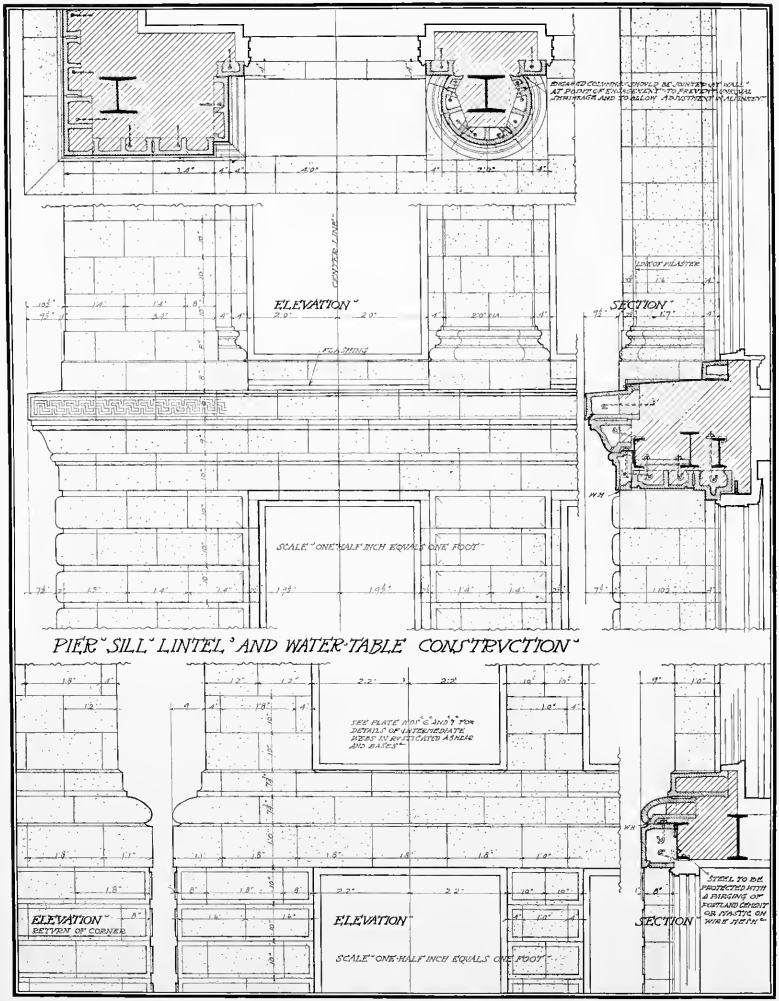

ROSE WINDOW
WITH MOULDED AND ORNAMENTED TRIM
WITH BRICK FIELD
THE DIAMETER OF WINDOW DESIGN AND THICKNESS OF MEMBERS WOULD VARY WITH THE RADIUS INCREASED
LINE OF BRICK WORK
CENTER LINE
IF OPENINGS ARE TO BE GIVEN GLASS SOME OF THE MEMBERS WOULD HAVE TO BE JOINTED TO FACILITATE SETTING GLASS SEE PLATE NOS 35-42
ELEVATION
ONE QUARTER OF WINDOW
SCALE THREE-QUARTERS OF AN INCH EQUALS ONE FOOT
PLAN
THRO WINDOW
THESE OUTSIDE RECESSES AT BOTTOM FILLED FLUSH SO AS TO SHED WATER



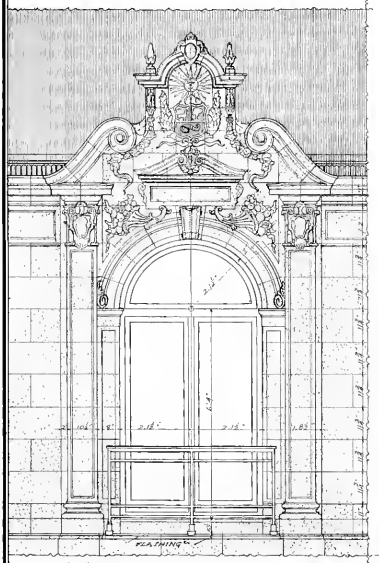
WINDOW WITH SEGMENTAL ARCH
WITH RUSTICATED ASHLAR
WITH HALF BALUSTERS UNDER WINDOWS
WITH CORNER PIER CONSTRUCTION


MULLIONED AND LOUVERED WINDOWS
WITH TERRA COTTA TRIM AND
RUBBLE STONE FIELD
PLAN
THRO' UPPER OPENINGS
ELEVATION
SECTION
SANITARY BASE
ALTERNATE LINTEL
CONSTRUCTION
RELIEVING ARCH
MANGE CHANNEL FRAME FOR LEADED GLASS
GLASS
THE VERTICAL JOINTING OF JAMBS MULLIONS SILLS AND HEADS
ALL LINE UP THE ADJUSTMENT IN ALIGNMENT OF BOTH EXTERIOR AND INTERIOR SURFACES
SCALE ONE-HALF INCH EQUALS ONE FOOT
PLAN
THRO' LOWER OPENINGS

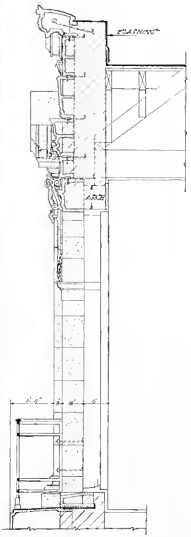

WINDOW
WITH MOULDED JAMB AND SILL
WITH INTERIOR TERRA COTTA WAINSCOT
THE VERTICAL JOINTING OF MOULDED JAMBS (PARTLY CONCEALED BY BACK QUEBONG) AS SHOWN PERMITS OF ADJUSTMENT IN ALIGNMENT IN SETTING
PLAN
ELEVATION
STOOL
SECTION
FOR NON-CORROSIVE CHANNEL SEE PLATE 10-98
WATERPROOFING
SCALE THREE-QUARTERS OF AN INCH EQUALS ONE FOOT


ENLARGED COLUMNS SHOULD BE CONTINUOUS WALLS AT POINT OF ENLARGEMENT TO PREVENT ORIGINAL THIN WASH AND TO ALLOW ADJUSTMENT IN ALIGNMENT
CENTER LINE
ELEVATION
SECTION
LINE OF PILASTER
FLASHING
WH
SCALE ONE-HALF INCH EQUALS ONE FOOT
PIER SILL LINTEL AND WATER TABLE CONSTRUCTION
SEE PLATE AND C AND F FOR DETAILS OF INTERMEDIATE PIERS IN RUSTICATED ASHLAR AND BASES
ELEVATION
RETURN OF CORNER
ELEVATION
SECTION
STEEL TO BE PROTECTED WITH A DRESSING OF PORTLAND CEMENT OR PLASTIC OR WIRE CLOTH
SCALE ONE-HALF INCH EQUALS ONE FOOT

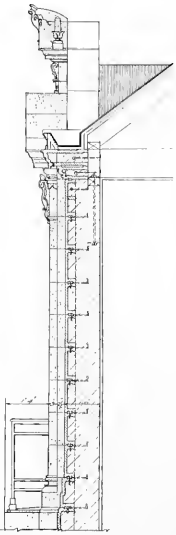
ATTIC STORY WINDOW
WITH PILASTERS, ARCH, PEDIMENT AND BALCONY



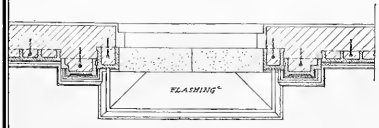
ELEVATION
FRONT OF WINDOW



SECTION
THRO WINDOW

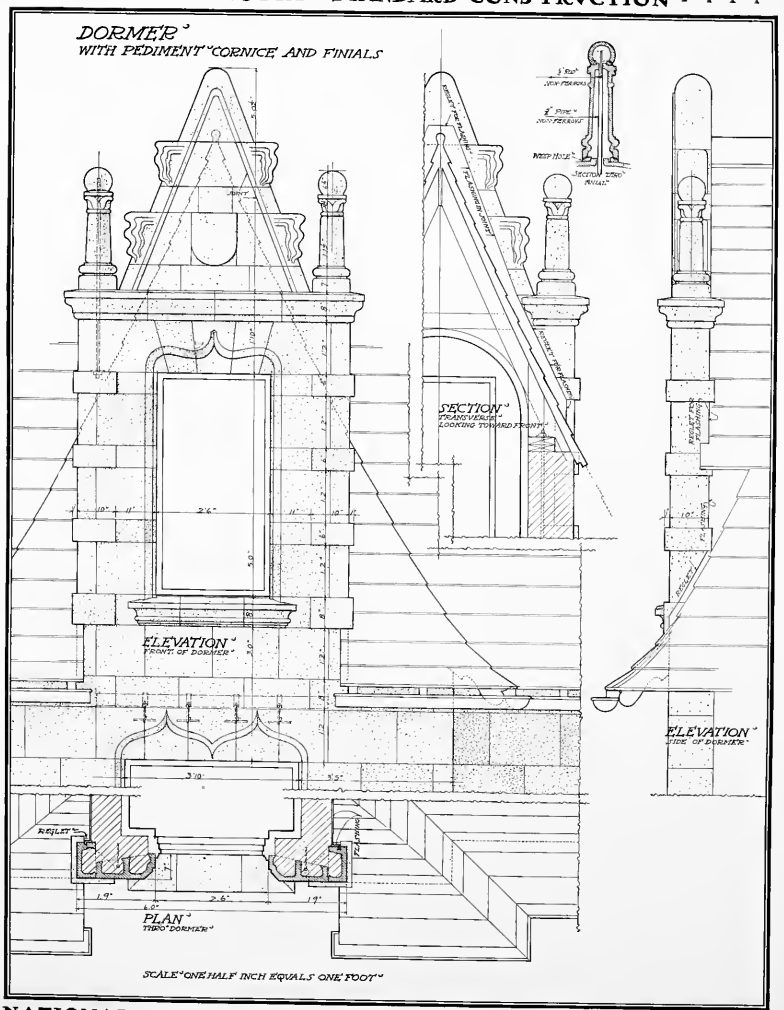


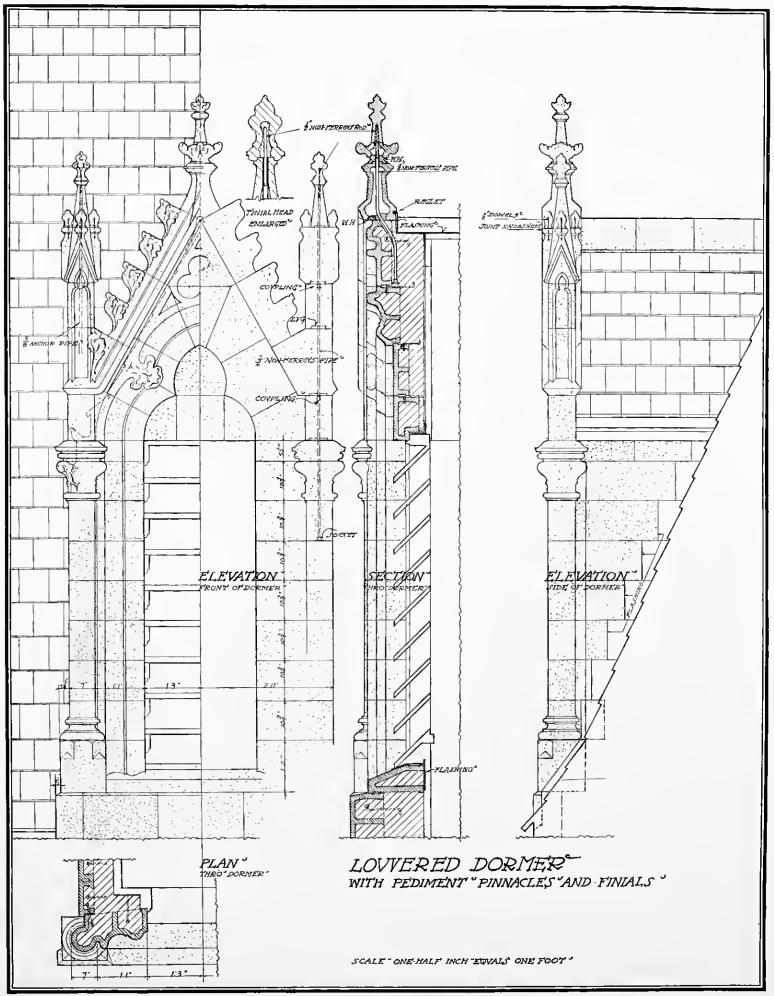
SECTION
THRO SIDE

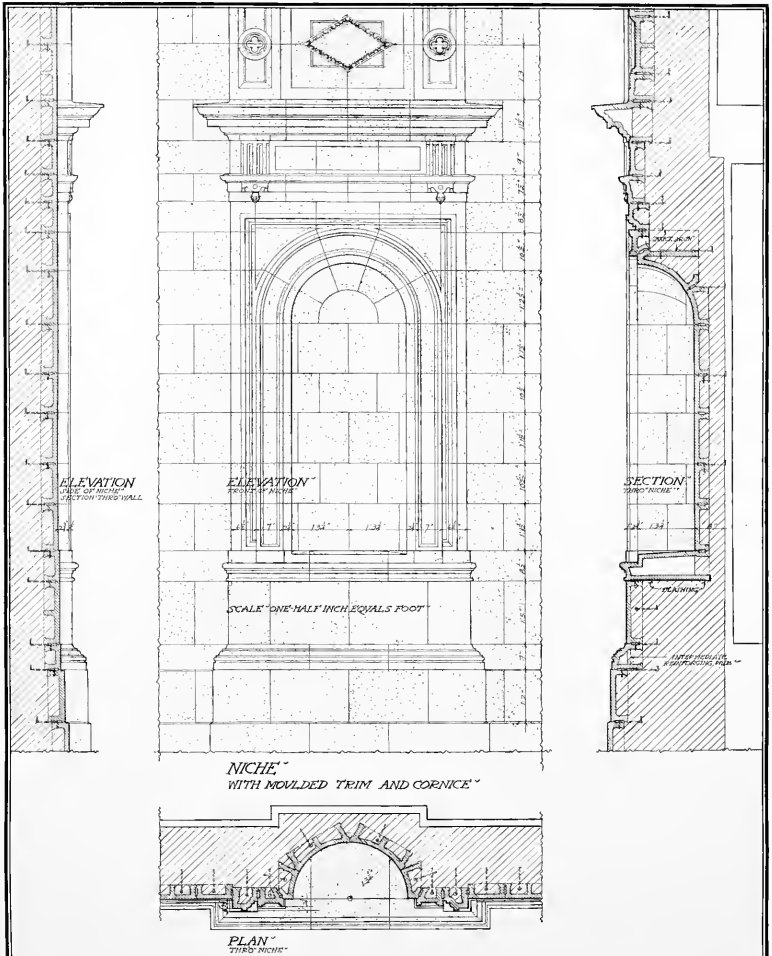


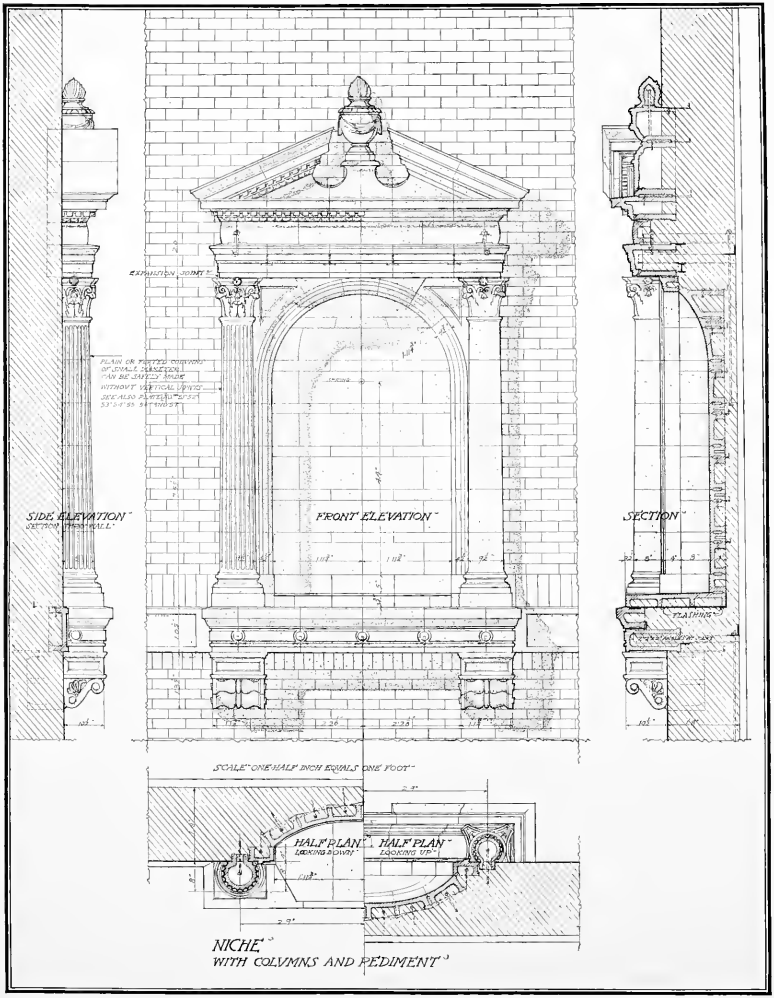
PLAN
THRO WINDOW

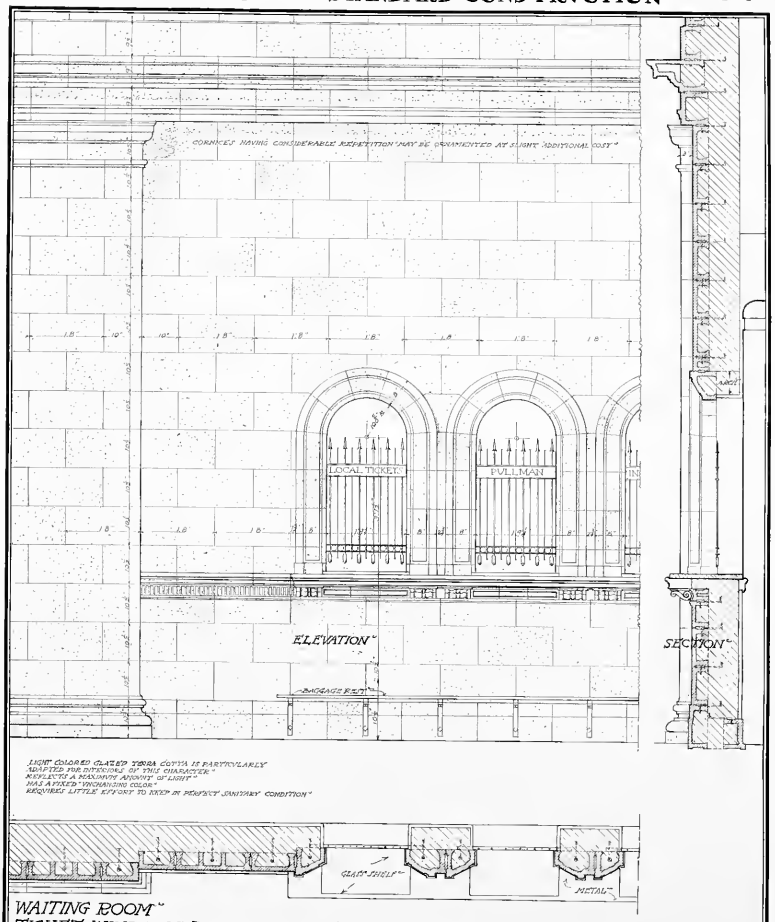
SCALE THREE-EIGHTHS OF AN INCH EQUALS ONE FOOT


DORMER
WITH PEDIMENT "CORNICE AND FINIALS
SECTION
TRANSVERSE
LOOKING TOWARD FRONT
ELEVATION
FRONT OF DORMER
ELEVATION
SIDE OF DORMER
PLAN
THRO' DORMER
SCALE "ONE HALF INCH EQUALS ONE FOOT"


FINIAL HEAD ENLARGED
COPING
COPING
FLASHING
ELEVATION
FRONT OF DORMER
SECTION
THRO' DORMER
ELEVATION
SIDE OF DORMER
FLASHING
PLAN
THRO' DORMER
LOVVERED DORMER
WITH PEDIMENT PINNACLES AND FINIALS
SCALE ONE-HALF INCH EQUALS ONE FOOT


ELEVATION
SIDE OF NICHE
SECTION THRO WALL
ELEVATION
FRONT OF NICHE
SCALE ONE HALF INCH EQUALS FOOT
SECTION
THRO NICHE
BEARING
NICHE
WITH MOULDED TRIM AND CORNICE
PLAN
THRO NICHE


EXPANSION JOINT
SIDE ELEVATION
SECTION THROUGH WALL
FRONT ELEVATION
SECTION
FLASHING
SCALE ONE HALF INCH EQUALS ONE FOOT
HALF PLAN
LOOKING DOWN
HALF PLAN
LOOKING UP
NICHE
WITH COLUMNS AND PEDIMENT



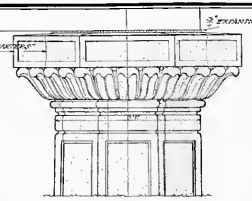
WAITING ROOM"
TICKET WINDOWS"
WITH COUNTER AND BAGGAGE REST"
PILASTER AND CORNICE"
FIELD OF PLAIN ASHLAR"

PLAN"

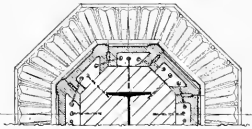
SCALE" ONE HALF INCH EQUALS ONE FOOT"

OCTAGON COLUMN WITH CAPITAL AND BASE

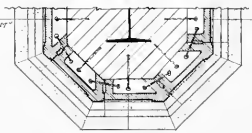
SCALE "THREE QUARTERS OF AN INCH EQUALS ONE FOOT"



ELEVATION
CAPITAL OF COLUMN



PLAN "THIRD-NECK"
LOOKING UP



PLAN "THIRD-BOTTOM"
LOOKING DOWN

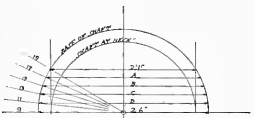
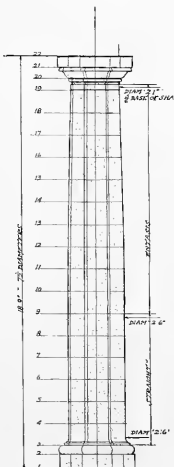
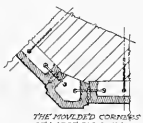


DIAGRAM "OF METHOD FOR OBTAINING ENTASIS OF SHAFT"
LAY OUT ACCURATELY TO FULL SIZE OF COLUMN
"A" "B" "C" AND "D" CAN THEN BE ACCURATELY MEASURED
GIVING THE DIAMETERS A1" 11" 13" 15" AND 11"

THE SHAFT AS JOINTED "TIERS" TO CONCEAL THE VERTICAL JOINTS PERMITS EASE FITTING AND ALLOWS OF ADJUSTMENT IN ALIGNMENT IN SETTING

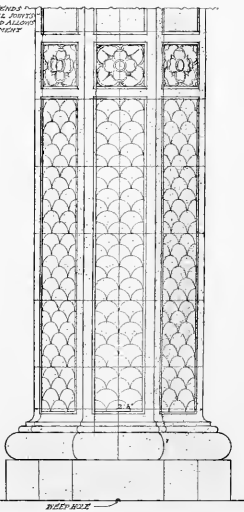


SCALE "ONE QUARTER OF AN INCH EQUALS ONE FOOT"



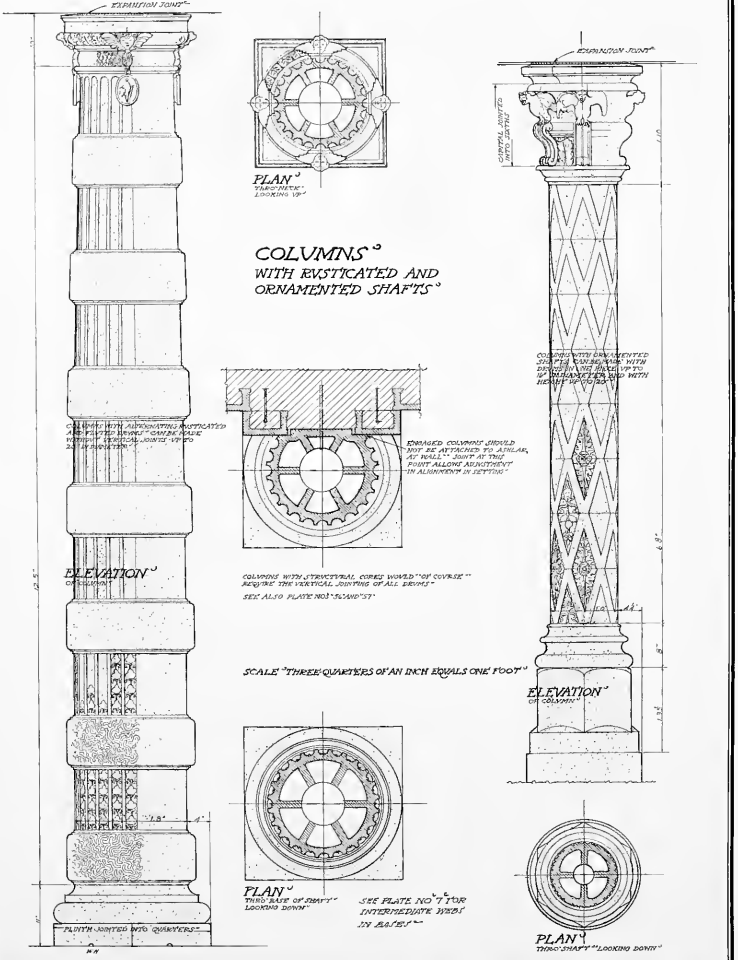
THE MOULDED CORNICE OF LARGE COLUMNS SHOULD BE JOINTED SEPARATELY

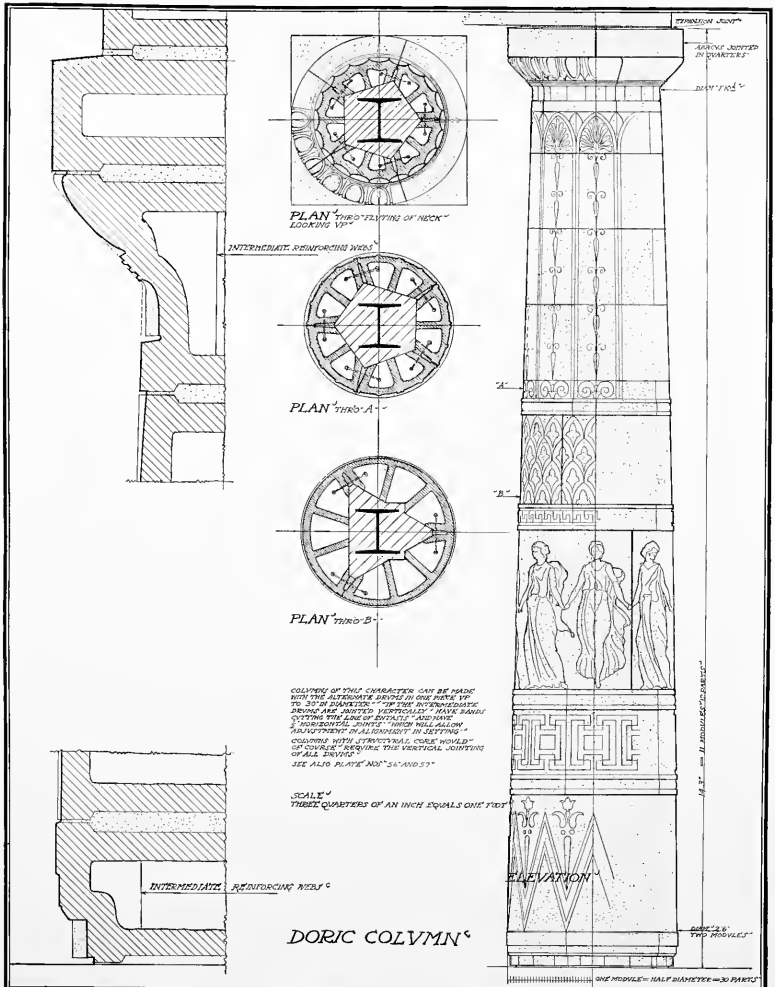
SEE PLATE NO "7" FOR INTERMEDIATE NECK IN ELEVATION



ELEVATION
BASE OF COLUMN

DEEP EDGE


EXPANSION JOINT
PLAN
THIRD BASE
LOOKING UP
COLUMNS
WITH RUSTICATED AND
ORNAMENTED SHAFTS
EXPANSION JOINT
CAPITAL JOINTED
INTO COURSES
COLUMNS WITH ORNAMENTED
SHAFTS SHOULD BE MADE WITH
EXPOSED LINE BEDS UP TO
1ST TRANSITION AND WITH
HEADS UP TO 2ND
COLUMNS WITH ALTERNATING RUSTICATED
AND FLUTED DRUMS, CAN BE MADE
WITHOUT VERTICAL JOINTS UP TO
25 IN DIAMETER
ENGAGED COLUMNS SHOULD
NOT BE ATTACHED TO ASHLAR
AT WALL - JOINT AT THIS
POINT ALLOWS ADJUSTMENT
IN ALIGNMENT IN SETTING
ELEVATION
OF COLUMN
COLUMNS WITH STRUCTURAL CORES WOULD OF COURSE
REQUIRE THE VERTICAL JOINTING OF ALL DRUMS
SEE ALSO PLATE NO1 "SCAFFOLDS"
SCALE "THREE QUARTERS OF AN INCH EQUALS ONE FOOT"
ELEVATION
OF COLUMN
PLAN
THIRD BASE OF SHAFT
LOOKING DOWN
SEE PLATE NO 7 FOR
INTERMEDIATE WEBS
IN BASES
PLAN
THIRD SHAFT LOOKING DOWN
FLUTES JOINTED INTO QUARTERS


PLAN "THRO' FLUTING OF NECK" LOOKING UP
INTERMEDIATE REINFORCING WEBS
PLAN "THRO' A"
PLAN "THRO' B"
COLUMNS OF THIS CHARACTER CAN BE MADE WITH THE ALTERNATE DRUMS IN ONE PIECE UP TO 30" IN DIAMETER; "IF THE INTERMEDIATE DRUMS ARE JOINTED VERTICALLY" HAVE BANDS CUTTING THE LINE OF ENTASIS" AND HAVE 2" HORIZONTAL JOINTS "WHICH WILL ALLOW ADJUSTMENT IN ALL DIAMETERS IN SETTING"
COLUMNS WITH "STRUCTURAL CORE MOULD" OR "CHARLE" REQUIRE THE VERTICAL JOINTING OF ALL DRUMS"
SEE ALSO PLATE NOS "56 AND 57"
SCALE
THREE QUARTERS OF AN INCH EQUALS ONE FOOT
INTERMEDIATE REINFORCING WEBS
DORIC COLUMN
ELEVATION
ARRISE JOINTED IN QUARTERS
DIAM "A"
DIAM "B"
DIAM "C"
TWO MODULES
ONE MODULE = HALF DIAMETER = 30 PARTS

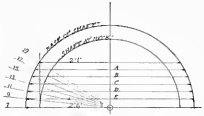
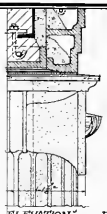


DIAGRAM OF METHOD FOR OBTAINING ENTASIS OF SHAFT LAY OUT ACCURATELY TO FULL SIZE OF COLUMN A B C D E AND F ON THAT BE ACCURATELY MEASURED GIVING THE DIAMETERS AT 9'11"-13'6" AND 17'

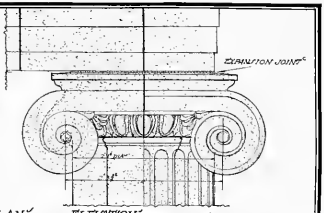
COLUMNS OF THIS CHARACTER CAN BE MADE WITH DRYTE IN ONE PIECE UP TO 14" IN DIAMETER AND IN HEIGHT UP TO 20'-0" THE HEIGHT OF DRYTE WOULD GENERALLY BE GOVERNED BY THE PROPER JOINTING OF COLUMN WITH ADJOINING WORK AND FOR APPEARANCE

COLUMNS WITH STRUCTURAL CORES WOULD OF COURSE REQUIRE THE VERTICAL JOINTING OF DRYTE

SEE ALSO PLATE NO 34 AND 35



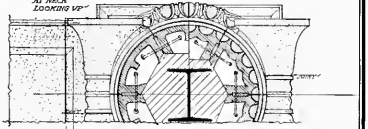
ELEVATION SIDE OF CAPITAL



EXPANSION JOINT

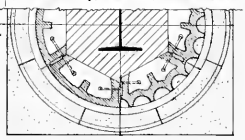
PLAN AT NECK LOOKING UP

ELEVATION FRONT OF CAPITAL

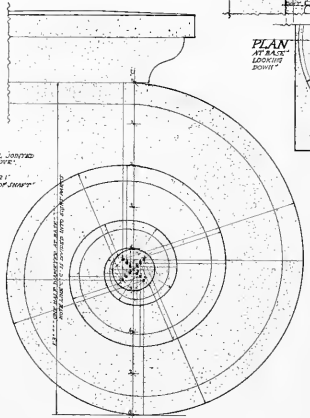


JOINT

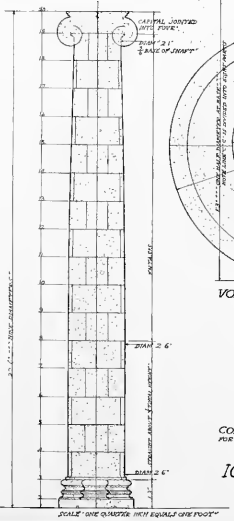
PLAN AT BASE LOOKING DOWN



SEE PLATE NO 71 FOR INTERMEDIATE ENDS IN BASES



VOLUTE QUARTER FULL SIZE DIAGRAM



CAPITAL JOINTED INTO TOP

TAPER 2" BASE OF SHAFT

ENTASIS

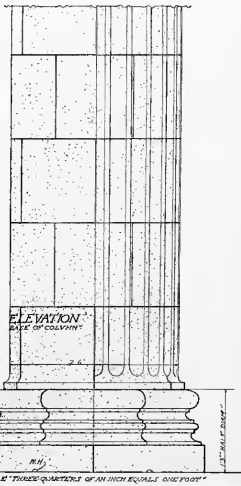
DIAM 2'6"

DIAM 2'6"

SCALE ONE QUARTER INCH EQUALS ONE FOOT

ONE SIXTEENTH DIAMETER OF SHAFT AT BASE

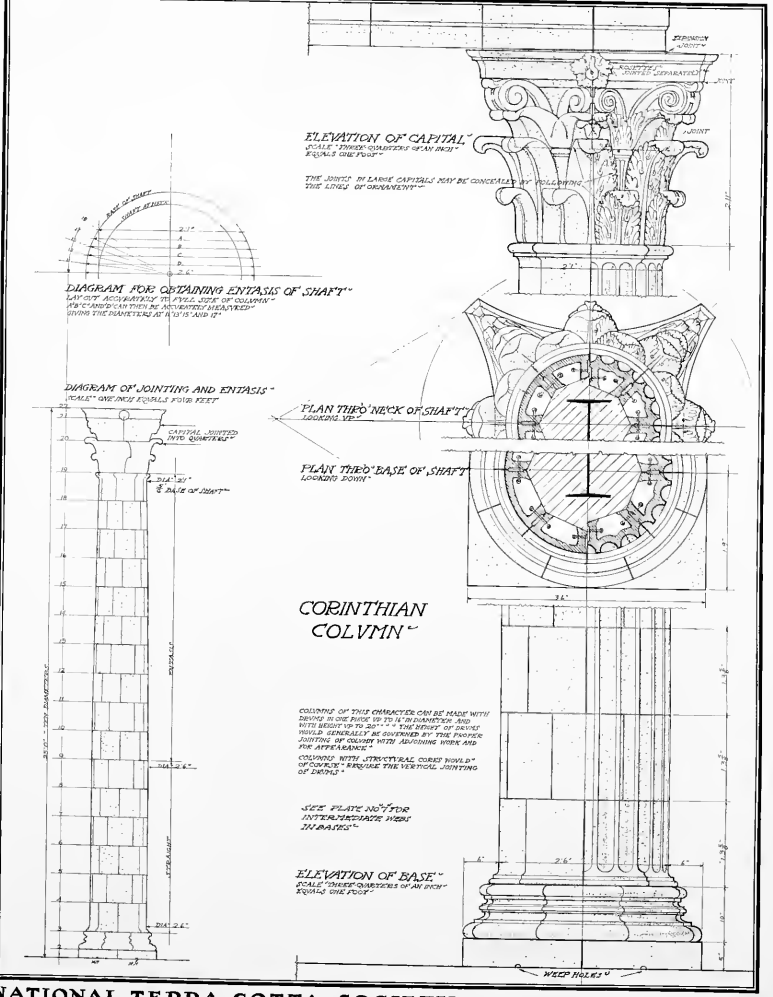
COMPASS CENTERS HALF FULL SIZE DIAGRAM FOR LAYING OUT VOLUTE ABOVE

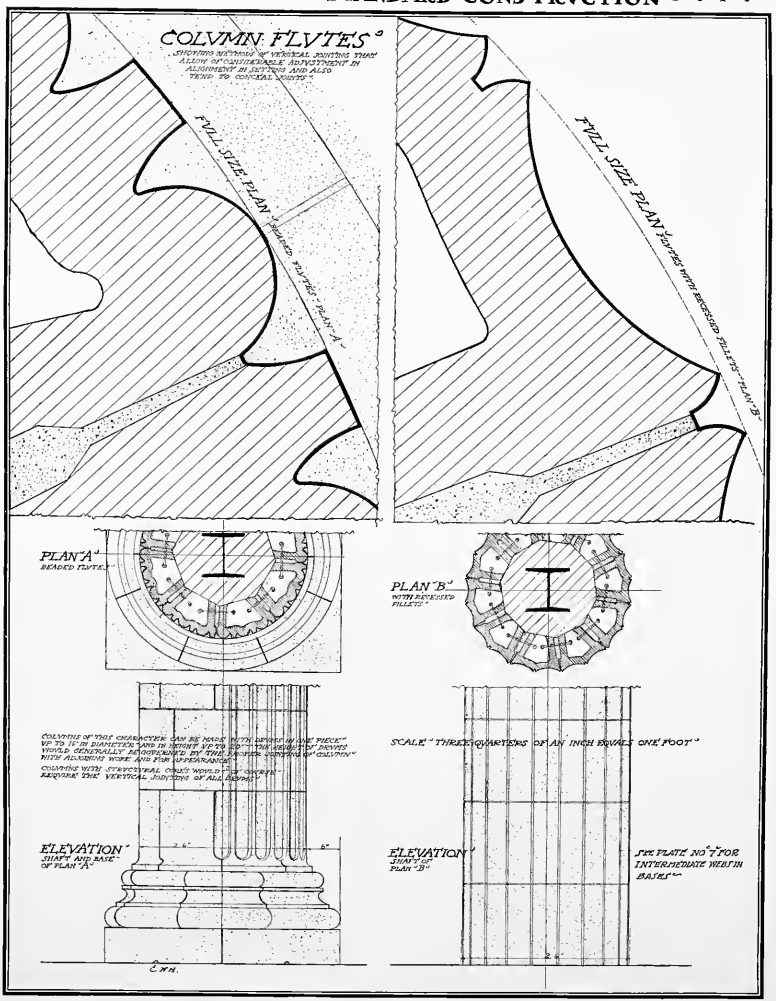


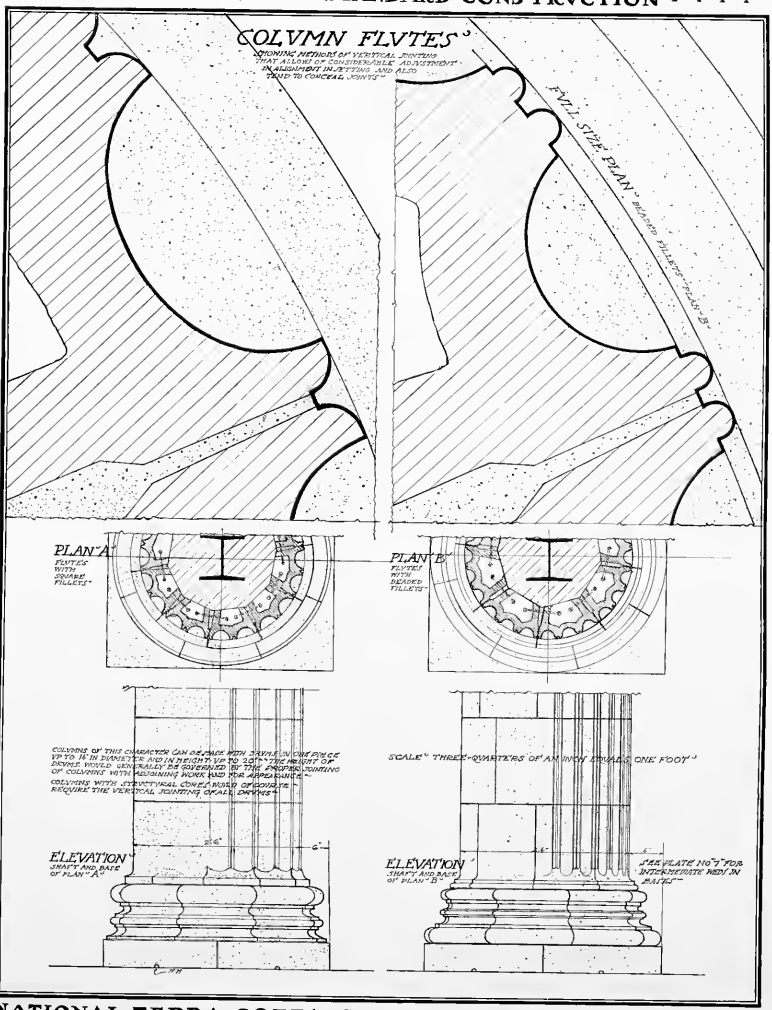
ELEVATION SIDE OF COLUMN

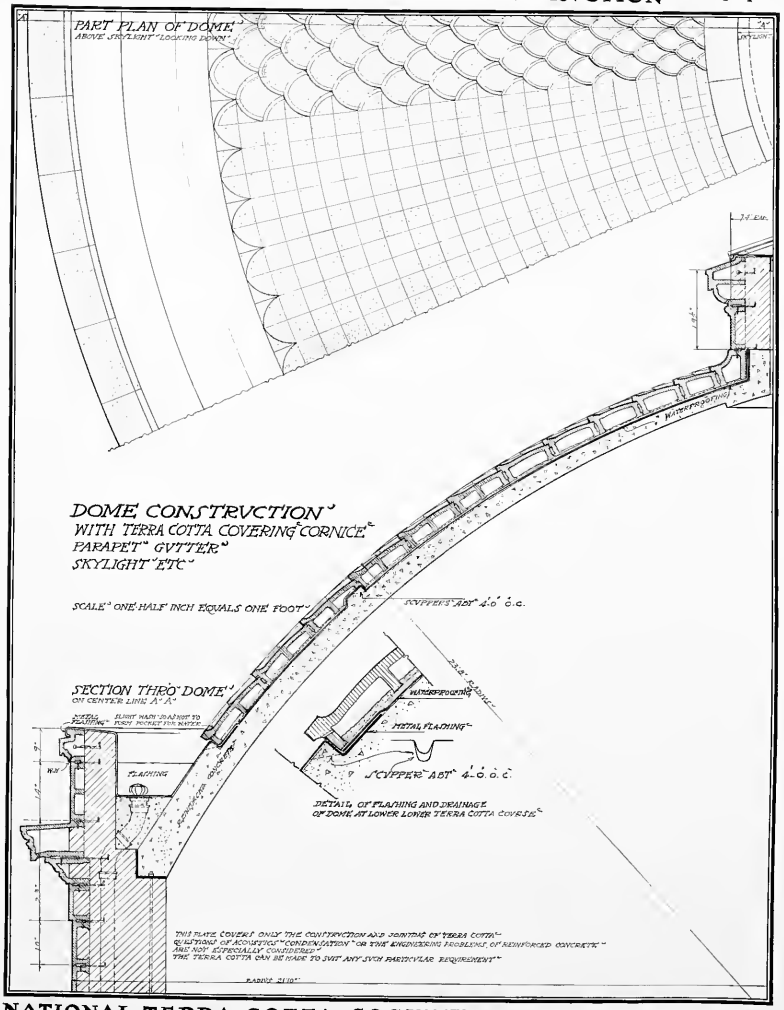
SCALE THREE QUARTERS OF AN INCH EQUALS ONE FOOT

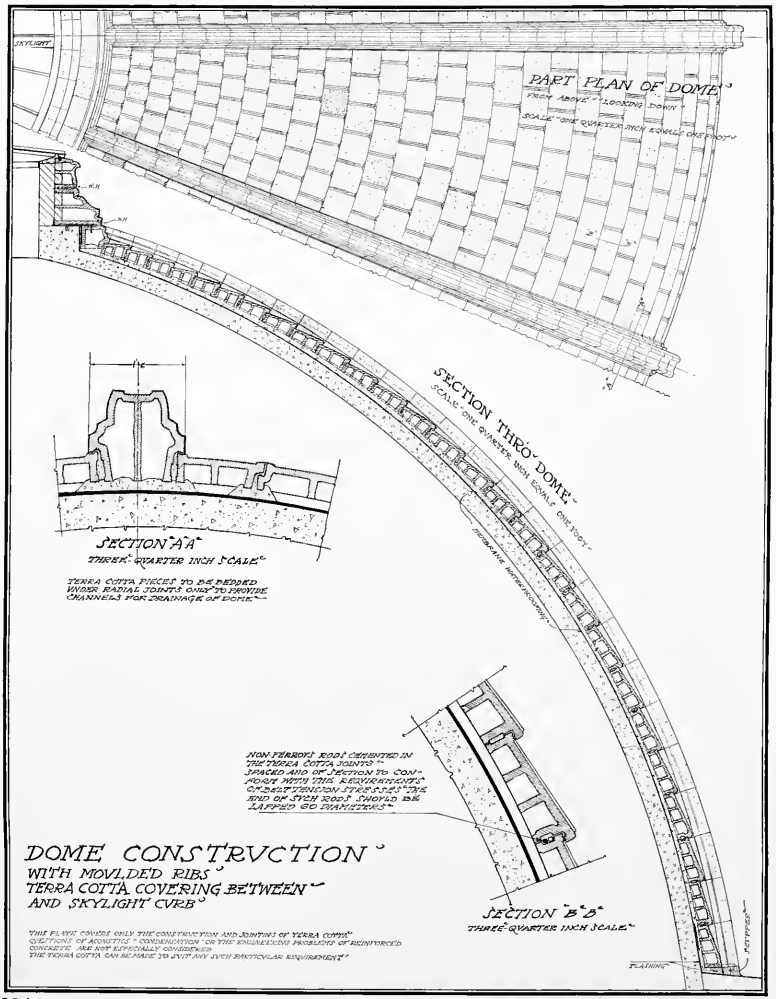
IONIC COLUMN


ELEVATION OF CAPITAL"
SCALE "THREE QUARTERS OF AN INCH" EQUALS ONE FOOT"
THE JOINTS IN LARGE CAPITALS MAY BE CONCEALED BY FOLLOWING THE LINES OF ORNAMENT"
DIAGRAM FOR OBTAINING ENTASIS OF SHAFT"
LAY OUT ACCURATELY TO FULL SIZE OF COLUMN"
ITS "C" AND "D" CAN THEN BE ACCURATELY MEASURED"
GIVING THE DIAMETERS AT A "B" AND "E"
DIAGRAM OF JOINTING AND ENTASIS"
SCALE" ONE INCH EQUALS FOUR FEET
CAPITAL JOINTED INTO QUARTERS"
BASE OF SHAFT"
ENTASIS
PLAN THRO' NECK OF SHAFT"
LOOKING UP"
PLAN THRO' BASE OF SHAFT"
LOOKING DOWN"
CORINTHIAN COLUMN"
COLUMNS OF THIS CHARACTER CAN BE MADE WITH DRUMS IN ONE PIECE UP TO 14' IN DIAMETER AND WITH WEIGHT UP TO 20" " " THE HEIGHT OF DRUMS WOULD GENERALLY BE GOVERNED BY THE PROPER JOINTING OF COLUMN WITH ABUTTING WORK AND FOR APPEARANCE"
COLUMNS WITH STRUCTURAL CORES NOW UP OF CONCRETE" REQUIRE THE VERTICAL JOINTING OF DRUMS"
SEE PLATE NO 7 FOR INTERMEDIATE WORK IN BASES"
ELEVATION OF BASE"
SCALE "THREE QUARTERS OF AN INCH" EQUALS ONE FOOT"
WEEP HOLES"


COLUMN FLUTES
SHOWING METHOD OF VERTICAL JOINTING THAT ALLOW OF CONSIDERABLE ADJUSTMENT IN ALIGNMENT IN SETTING AND ALSO TEND TO CONCEAL JOINTS
FULL SIZE PLAN "BEADED FLUTES" PLAN "A"
FULL SIZE PLAN "FLUTES WITH RECESSED FILLETS" PLAN "B"
PLAN "A"
BEADED FLUTE
PLAN "B"
WITH RECESSED FILLETS
COLUMNS OF THIS CHARACTER CAN BE MADE WITH DRUMS IN ONE PIECE WE TO 11'-0" IN DIAMETER AND IN HEIGHT UP TO 30'-0" THE LENGTH OF DRUMS WOULD GENERALLY BE DETERMINED BY THE LENGTH OF CONTROL WITH ALLOWING WORK AND FOR APPEARANCE
COLUMNS WITH STRUCTURAL JOINTS WHERE IT IS SOUGHT REQUIRE THE VERTICAL JOINTING OF ALL DRUMS
SCALE "THREE-QUARTERS OF AN INCH EQUALS ONE FOOT"
ELEVATION
SHAFT AND BASE OF PLAN "A"
ELEVATION
SHAFT OF PLAN "B"
SEE PLATE NO 7 FOR INTERMEDIATE WEB IN BASES
E.W.H.

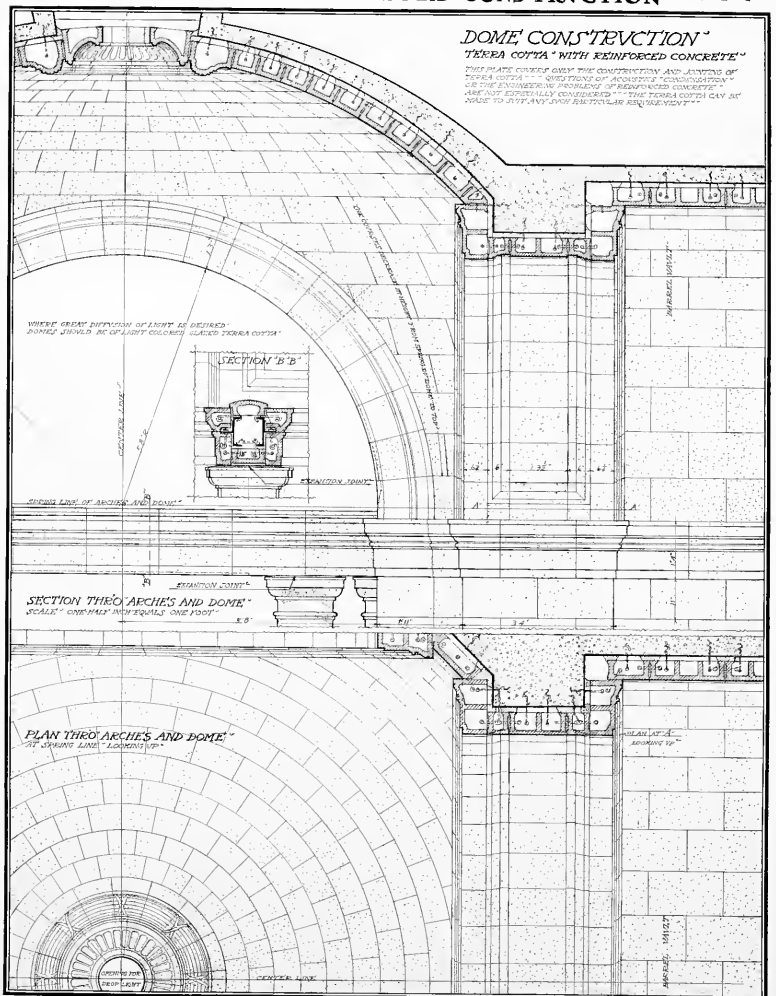

COLUMN FLUTES
JOINING METHODS OF VERTICAL JOINTING THAT ALLOWS OF CONSIDERABLE ADJUSTMENT IN ALIGNMENT IN SETTING AND ALSO TEND TO CONCEAL JOINTS
FULL SIZE PLAN BEADED FILLETS PLAN B
PLAN A
FLUTES WITH SQUARE FILLETS
PLAN B
FLUTES WITH BEADED FILLETS
COLUMNS OF THIS CHARACTER CAN BE MADE WITH JOINTS IN ONE PIECE UP TO 16 IN DIAMETER AND IN HEIGHT UP TO 20 THE HEIGHT OF DRUM WOULD GENERALLY BE GOVERNED BY THE PROPER JOINTING OF COLUMNS WITH ADJOINING WORK AND FOR APPEARANCE
COLUMNS WITH STRUCTURAL CONCRETE CORES USUALLY REQUIRE THE VERTICAL JOINTING OF ALL DRUMS
SCALE THREE-QUARTERS OF AN INCH EQUALS ONE FOOT
ELEVATION SHAFT AND BASE OF PLAN A
ELEVATION SHAFT AND BASE OF PLAN B
SEE PLATE NO 7 FOR INTERMEDIATE WIDTH IN RANGE

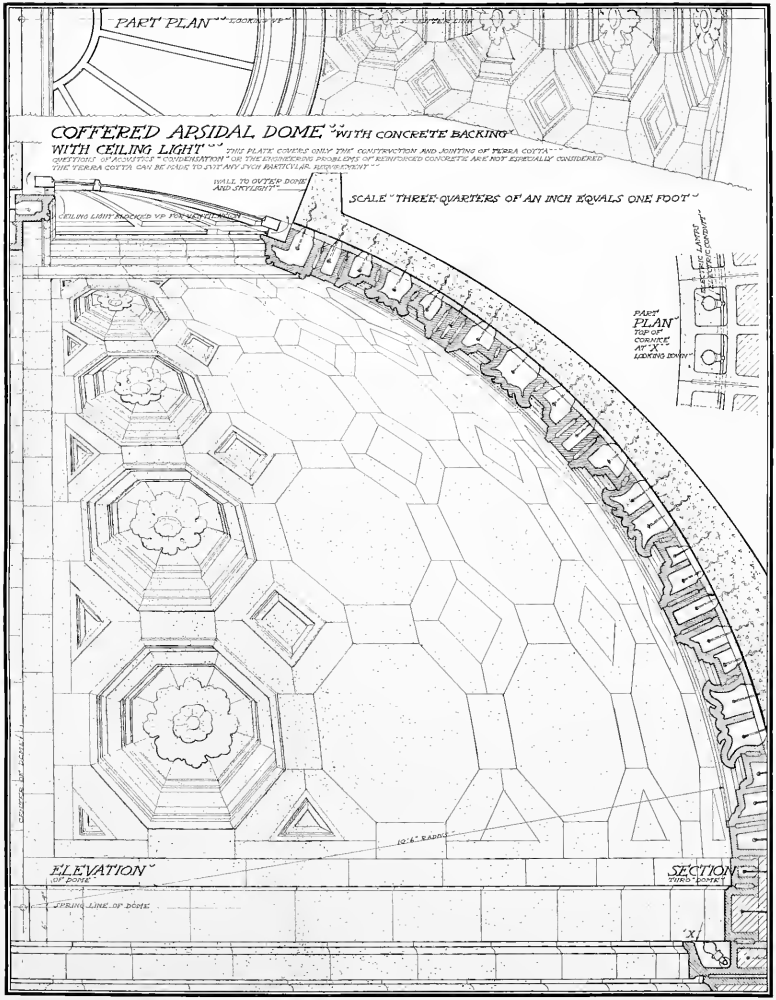

PART PLAN OF DOME
ABOVE SKYLIGHT "LOOKING DOWN"
DOME CONSTRUCTION
WITH TERRA COTTA COVERING CORNICE
PARAPET GUTTER
SKYLIGHT ETC
SCALE 3 ONE HALF INCH EQUALS ONE FOOT
SECTION THRO DOME
ON CENTER LINE A A
COPPERS ABT 4'0" O.C.
WATERPROOFING
METAL FLASHING
SCUPPER ABT 4'0" O.C.
DETAIL OF FLASHING AND DRAINAGE
OF DOME AT LOWER LONER TERRA COTTA COURSE
FLASHING
THIS PLATE COVERS ONLY THE CONSTRUCTION AND JOINTING OF TERRA COTTA
QUESTIONS OF ACOUSTICS CONDENSATION OR THE ENGINEERING PROBLEMS OF REINFORCED CONCRETE
ARE NOT ESPECIALLY CONSIDERED
THE TERRA COTTA CAN BE MADE TO SUIT ANY SUCH PARTICULAR REQUIREMENT

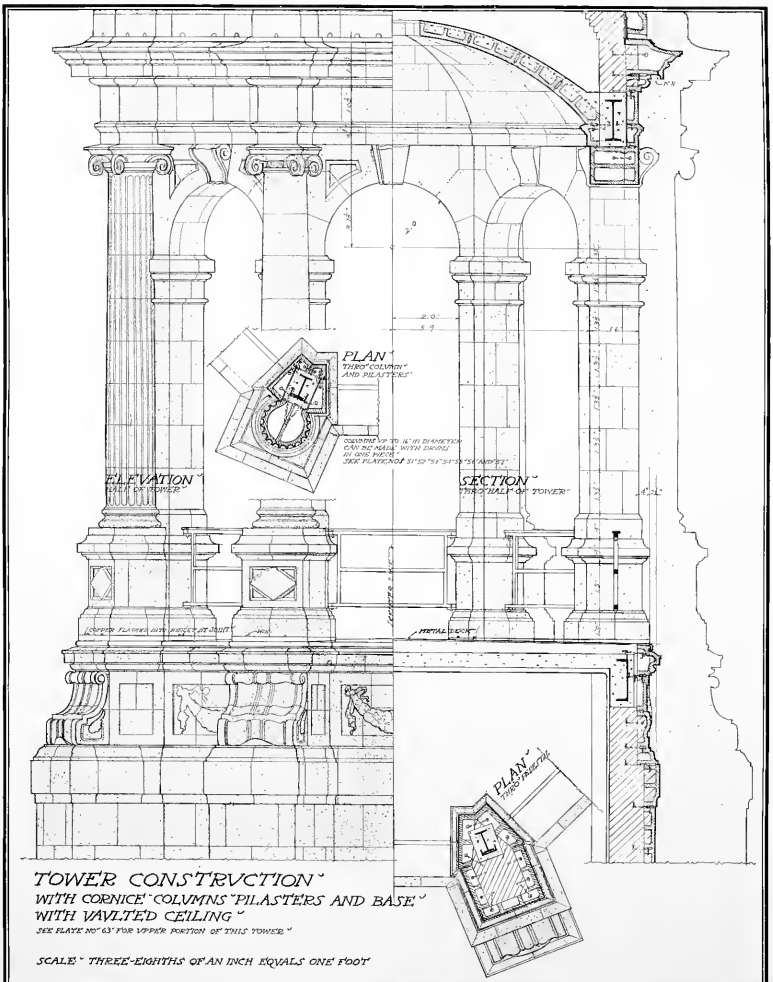


DOME CONSTRUCTION
WITH MOULDED RIBS
TERRA COTTA COVERING BETWEEN
AND SKYLIGHT CURB

THIS PLATE COVERS ONLY THE CONSTRUCTION AND JOINTING OF TERRA COTTA QUESTIONS OF ACOUSTICS CONDENSATION OR THE ENGINEERING PROBLEMS OF REINFORCED CONCRETE ARE NOT ESPECIALLY CONSIDERED
THE TERRA COTTA CAN BE MADE TO SUIT ANY SUCH PARTICULAR REQUIREMENT

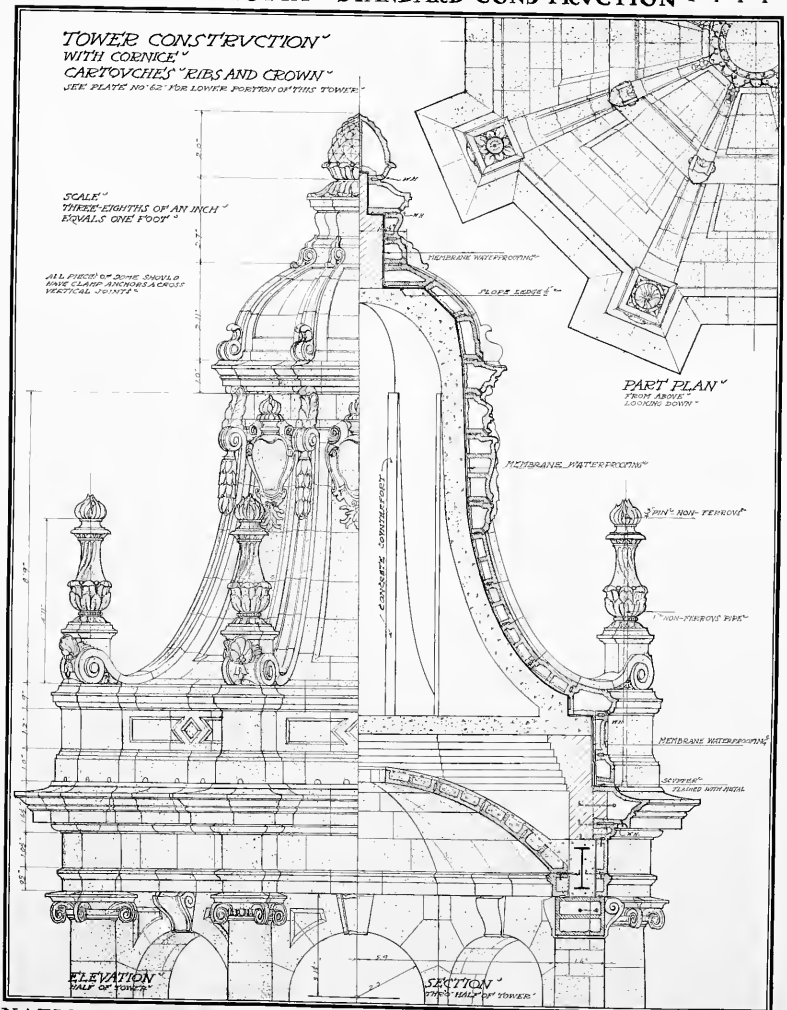

DOME CONSTRUCTION"
TERRA COTTA" WITH REINFORCED CONCRETE"
THIS PLATE COVERS ONLY THE CONSTRUCTION AND ANCHORS OF "TERRA COTTA" - QUESTIONS OF ACOUSTICS CONGREGATION - OR THE ENGINEERING PROBLEMS OF REINFORCED CONCRETE" ARE NOT ESPECIALLY CONSIDERED." THE TERRA COTTA CAN BE MADE TO FIT ANY OVER RECTILAR REVOLVENT""
WHERE GREAT DIFFUSION OF LIGHT IS DESIRED DOMES SHOULD BE OF LIGHT COLORED GLAZED TERRA COTTA"
SECTION "B"B"
EXPANSION JOINT
SPRING LINE OF ARCHES AND DOME"
SECTION THRO' ARCHES AND DOME"
SCALE" ONE HALF INCH EQUALS ONE FOOT"
PLAN THRO' ARCHES AND DOME""
AT SPRING LINE" LOOKING UP"
PLAN AT A
LOOKING UP
CENTER LINE
OPENING FOR SKYLIGHT

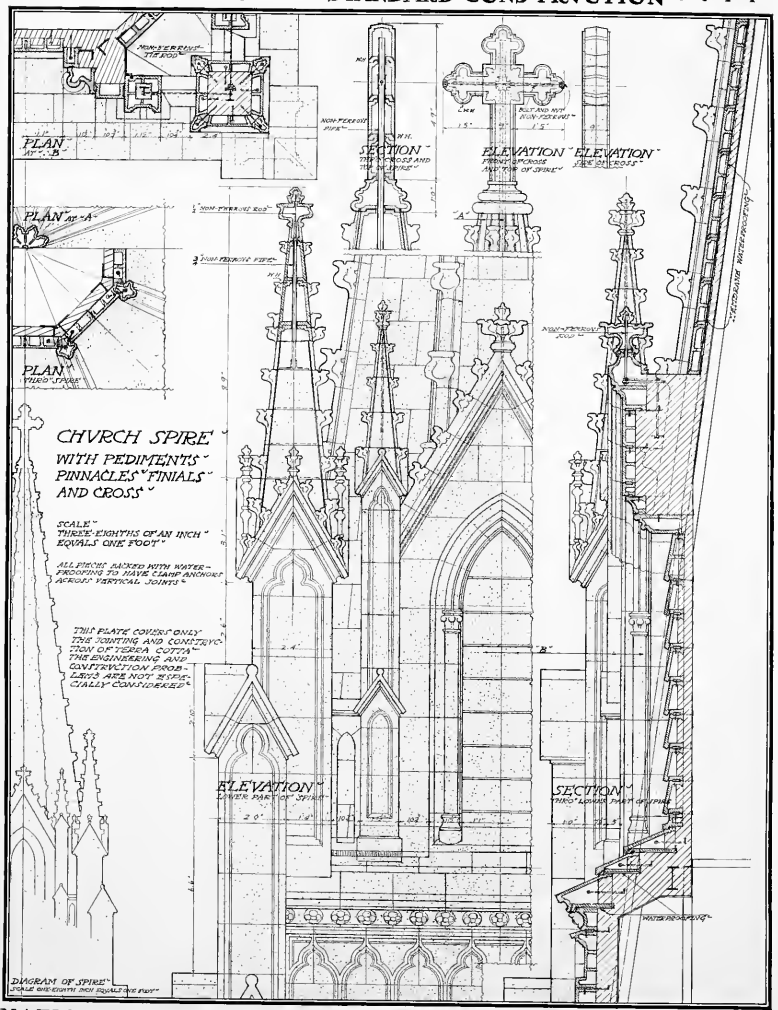

PART PLAN "LOOKING UP"
COFFERED APSIDAL DOME "WITH CONCRETE BACKING"
WITH CEILING LIGHT
"THIS PLATE COVERS ONLY THE CONSTRUCTION AND JOINTING OF TERRA COTTA"
QUESTIONS OF ACOUSTICS "CONDENSATION" OR THE ENGINEERING PROBLEMS OF REINFORCED CONCRETE ARE NOT ESPECIALLY CONSIDERED
"THE TERRA COTTA CAN BE FOUR TO SIX" ANY INCH PARTICULAR REQUIREMENT
WALL TO OUTER DOME AND SKYLIGHT
CEILING LIGHT BACKED UP FOR ILLUMINATION
SCALE "THREE QUARTERS OF AN INCH EQUALS ONE FOOT"
PART PLAN TOP OF CORNICE AT "X" LOOKING DOWN
10'-6" RADIUS
ELEVATION OF DOME
SECTION THRU CENTRE
SPRING LINE OF DOME
X

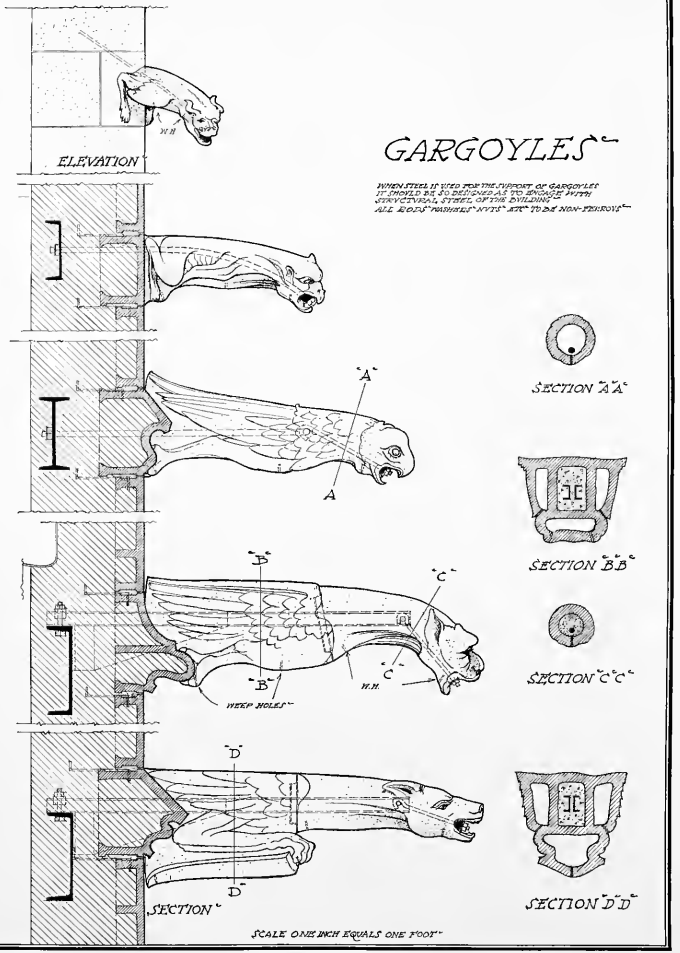


TOWER CONSTRVCTION
WITH CORNICE COLUMNS PILASTERS AND BASE
WITH VAULTED CEILING
SEE PLATE NO 63 FOR UPPER PORTION OF THIS TOWER

SCALE THREE-EIGHTHS OF AN INCH EQVALS ONE FOOT

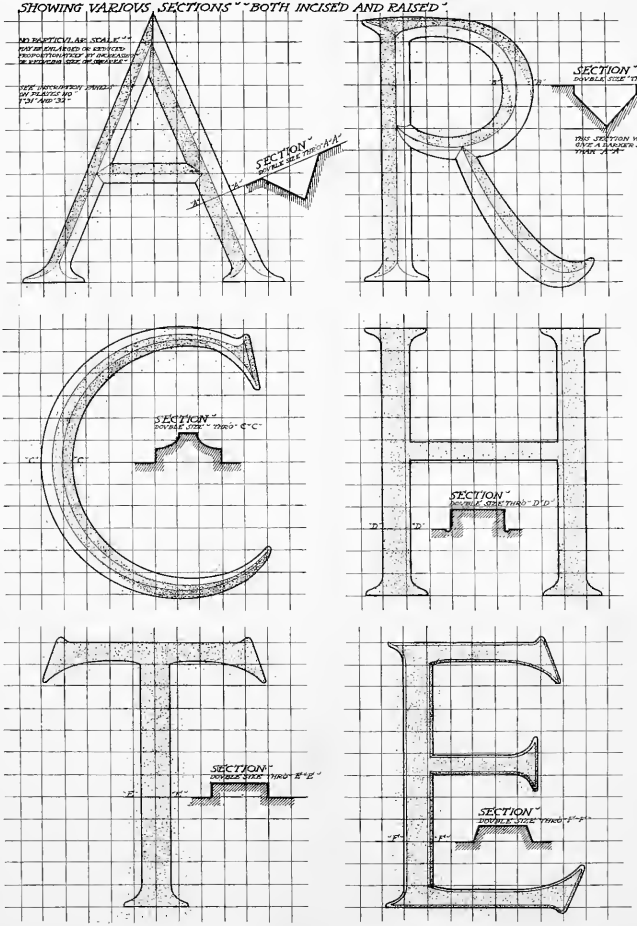

TOWER CONSTRUCTION
WITH CORNICE
CARTOUCHES "RIBS AND CROWN"
SEE PLATE NO 62 FOR LOWER PORTION OF THIS TOWER
SCALE
THREE-EIGHTHS OF AN INCH
EQUALS ONE FOOT
ALL PIECES OF DOME SHOULD HAVE CLAMP ANCHORS ACROSS VERTICAL JOINTS
MEMBRANE WATERPROOFING
FLOOR LEDGE
PART PLAN
FROM ABOVE
LOOKING DOWN
MEMBRANE WATERPROOFING
CONCRETE SURFACE FOOT
3 PIN NON-FERROUS
NON-FERROUS PIPE
MEMBRANE WATERPROOFING
SCUPPER
FLASHED WITH METAL
ELEVATION
HALF OF TOWER
SECTION
ONE-HALF OF TOWER


PLAN AT "B"
PLAN AT "A"
PLAN "THIRD STORY"
SECTION "THROUGH PINNACLES AND FINIAL OF SPIRE"
ELEVATION "FRONT OR CROSS PART OF SPIRE"
ELEVATION "SIDE OR CROSS"
CHURCH SPIRE
WITH PEDIMENTS
PINNACLES FINIALS
AND CROSS
SCALE
THREE-EIGHTHS OF AN INCH
EQUALS ONE FOOT
ALL PIECES BACKED WITH WATER-PROOFING TO HAVE CLAMP ANCHORS ACROSS VERTICAL JOINTS
THIS PLATE COVERS ONLY THE JOINTING AND CONSTRUCTION OF TERRA COTTA THE ENGINEERING AND CONSTRUCTION PROBLEMS ARE NOT SPECIALLY CONSIDERED
ELEVATION
LOWER PART OF SPIRE
SECTION
THIRD LOWER PART OF SPIRE
DIAGRAM OF SPIRE
SCALE ONE EIGHTH INCH EQUALS ONE FOOT


ELEVATION
W.H
GARGOYLES
WHEN STEEL IS USED FOR THE SUPPORT OF GARGOYLES IT SHOULD BE SO DESIGNED AS TO ENGAGE WITH STRUCTURAL STEEL OF THE BUILDING
ALL RODS WASHERS NUTS ETC TO BE NON-FERROUS
A
A
SECTION A A
B
B
C
C
B
C
W.H
WEEP HOLES
SECTION B B
SECTION C C
D
D
SECTION
SECTION D D
SCALE ONE INCH EQUALS ONE FOOT

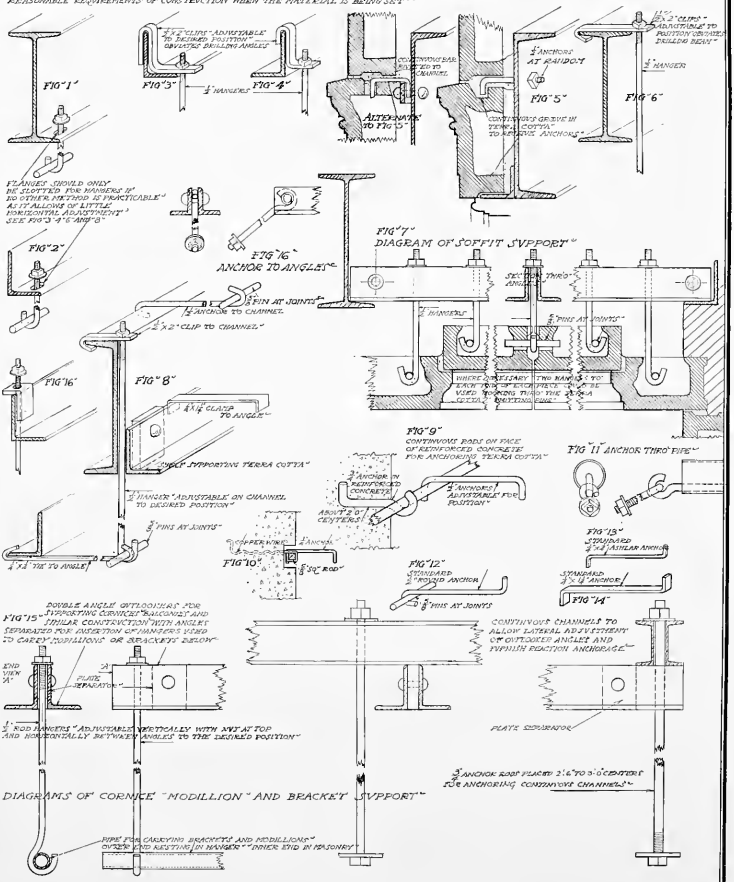
LETTERING

SHOWING VARIOUS SECTIONS "BOTH INCISED AND RAISED"



DETAILS OF ANCHORS, HANGERS, STBARS, CLAMPS, ETC. USED IN SETTING TERRA COTTA

STRUCTURAL STEEL WHICH EXECUTED FREQUENTLY VARIES FROM EXACT FIGURED DIMENSIONS, FOR THIS REASON ALL SUPPORTS FOR TERRA COTTA, INCLUDING ANGLES, RODS, ANCHORS, ETC. SHOULD BE DESIGNED SO AS TO PERMIT OF EASY ADJUSTMENT TO THE REASONABLE REQUIREMENTS OF CONSTRUCTION WHEN THE MATERIAL IS BEING SET.



Standard Specification

for the

Manufacture, Furnishing and Setting of Terra Cotta

Adopted by NATIONAL TERRA COTTA SOCIETY

NOTE:—The Architect or Specification Writer will find it convenient to follow the Short Form Specification beginning with Section 63.

The Short Form incorporates all the provisions of the Standard Terra Cotta Specification, but eliminates the necessity of mentioning them in detail.

Reference to the Glossary, Sections 50-62, will supply the surface finish, ceramic finish, and color data necessary to specify surface and color correctly.

The Corollary Clauses, Sections 85, 86, explain the setting option between mason and manufacturer.

Sections 87-91 under Corollary Clauses explain the specifications for flashing, sheet metal, structural steel, structural concrete and rough carpentry. These specifications form a part of the Terra Cotta Specifications, although the materials are supplied and set in place by different contracting parties.

A—GENERAL INFORMATION

Drawings and Schedules

1. The Terra Cotta manufacturer shall be furnished with all drawings, details and other information necessary for the manufacture of Terra Cotta, including drawings for all classes of work with which the Terra Cotta engages.

2. Wherever Terra Cotta is required to match in contour, color, finish and surface treatment, existing Terra Cotta, as for example in connection with alterations or additions to existing work, the Terra Cotta manufacturer shall be furnished with the required profiles and samples of the original work, and other needed information.

3. The Terra Cotta manufacturer shall, before proceeding with manufacture, submit to the architect for his correction and approval, shop drawings showing jointing and construction of the Terra Cotta and provision made for all flashing and counter flashing. These drawings must conform as nearly as practicable to the architect's drawings, but shall be in accordance with good Terra Cotta structural practice.

4. All pieces of Terra Cotta shall be numbered. The Terra Cotta manufacturer shall provide two copies of the completed scale shop drawings to be used for setting and showing the piece numbering of the Terra Cotta, and the size of the joints to be used for setting the various portions of the work clearly indicated. These drawings shall be designated as the setting drawings.

5. The Terra Cotta manufacturer shall furnish, as promptly as possible, a schedule of all special anchors, hangers, etc., necessary to secure and support the Terra Cotta in a manner approved by the architect.

B—MATERIAL

Quality Tests

6. Note:—In view of the researches now being conducted by the National Bureau of Standards at the instance of the National Terra Cotta Society, it seems inadvisable to attempt, at this time, to write either quality clauses in terms of crushing strengths, densities and elasticity, or specifications for tests. Clauses descriptive of the desirable physical characteristics and of tests to prove compliance of the material with such physical requirements will be prepared as soon as the necessary data are available and inserted in a later edition of this standard specification.

Modeling

7. All ornament shall be artistically modeled by the Terra Cotta manufacturer's staff artists. (Or, models made to Terra Cotta shrinkage scale will be furnished to Terra Cotta manufacturer, without cost to him, securely crated for shipment f. o. b. modelers' studio at).

8. Photographs in duplicate of all ornament shall be submitted to the architect for his approval or correction, or, if he so desires, he may inspect all modeling at the factory. Such approval or inspection by the architect shall be made promptly. No ornamental work shall be burned until modeling has been approved.

Surface Finish, Ceramic Finish and Color

9. The surface finish, ceramic finish and color of all exposed surfaces of Terra Cotta shall be as indicated by the architect's drawings or as specified. For surface and ceramic treatments, see Glossary of Terms relating to Terra Cotta, which is hereby made a part of this specification.

10. The ceramic finish shall be applied to the Terra Cotta in such a manner as thoroughly to coat the exposed surfaces.

Samples

11. The Terra Cotta manufacturer shall submit samples of the color or colors of the ceramic finish to the architect for his approval, and all Terra Cotta shall conform without marked variation to the sample or samples approved.

C—DESIGN AND STRUCTURE

Ends, Walls and Partitions

12. Walls shall not be less than one inch thick and partitions shall be of such thickness and so spaced as to perform their proper functions with regard to form and structure. Each piece of Terra Cotta shall be provided with the necessary anchor holes and hand holes and shall be so formed as properly to engage the structure. Beds generally shall be not less than 1" deep.

Washes, Weep Holes and Drips

13. Projecting courses, cornices and heavy ornamental detail may have washes, drips and weep holes, where shown on the approved shop drawings.

Preparation for Flashing

14. Where so shown the washes of all projecting cornices and other exposed horizontal surfaces shall have provision made for flashing. All surfaces where the wash pitches inward toward the structure and stops against superimposed work; all balcony floors, and all gutter grades shall have provision made for flashing.

15. Raggles shall be provided to receive gutter linings and flashings when the joints cannot be used for the purpose. Raggles shall be not less than $\frac{3}{4}$" deep.

16. All capping courses, copings and sills except of the "slip" type, shall have stools and lugs at intersections with vertical surfaces.

Joints

17. All joints shall be straight and true and of an approximate uniform width of $\frac{1}{4}$". All Terra Cotta shall be laid out at the factory to test it for uniformity of joint widths and over-all dimensions. Where necessary to secure accurate dimensions and uniform joint widths, the material shall be sized straight and true.

D—TRANSPORTATION, STORAGE AND PROTECTION

Shipment, Delivery and Care

18. Unless otherwise specifically agreed, all Terra Cotta shall be furnished by the manufacturer f. o. b. cars factory, with freight allowed to destination. All Terra Cotta shall be carefully packed in hay, straw, excelsior or other suitable material.

Replacements

19. If any pieces of Terra Cotta are damaged in transit, the manufacturer shall be immediately notified in writing by the setting contractor and proceed with the remaking of the pieces. The responsibility for the cost of such replacements shall be determined by the point of delivery fixed by the contract under which the Terra Cotta is delivered. If the point of delivery is beyond the immediate control of the manufacturer, the setting contractor shall assume responsibility for the necessary proof of damage.

E—ERECTION

Handling

20. The setting contractor shall receive the Terra Cotta on arrival at the freight yards and shall transfer it without damage from the cars to the building. When the Terra Cotta manufacturer delivers on trucks at the building the setting contractor shall unload and store the Terra Cotta. Terra Cotta shall be stored under cover, not in contact with the ground, stacked without inflammable packing on wood laths or strips, so as to protect it from injury.

Mechanics

21. All Terra Cotta shall be set by mechanics experienced in the handling and setting of the material.

Cutting and Fitting at the Building

22. Notice of errors in the manufacture of the Terra Cotta shall be given to the manufacturer immediately upon discovery. Cutting or fitting due to such errors shall be done by the Terra Cotta manufacturer or shall be paid for by him if he fails to do the necessary cutting or fitting promptly upon receipt of notice.

23. Other necessary cutting and fitting of the Terra Cotta that may be required at the building, including all fitting around anchors, steel and iron work and reinforced concrete, shall be done by the contractor for setting Terra Cotta.

Supporting Metal Work and Anchors

24. *In Connection with Structural Steel:* Beams, channels, angles, T's, plates and fabricated members for supporting Terra Cotta and which are not secured to the structural steel by rivets or short bolts, as shown on the architect's drawings, together with all anchors, hangers, bolts, clips, straps, rods and pins for securing Terra Cotta, shall be furnished and set by the contractor for setting Terra Cotta.

25. *In Connection with Structural Concrete:* The contractor for structural concrete shall furnish and set all supporting metal work imbedded in the concrete and all shelf angles and continuous rods. All such metal work shall conform to the requirements of the setting drawings prepared by the Terra Cotta manufacturer.

26. All other loose iron such as clamps, hangers, clips, straps, and pins shall be furnished and set by the Contractor for setting Terra Cotta.

27. All anchors, hangers, bolts, clips, straps, rods and pins for securing Terra Cotta shall be of wrought iron or non-corroding soft steel.

28. Anchors, hangers, bolts, clips, straps, rods and pins for securing the Terra Cotta, except where otherwise shown or specified, shall be of the following minimum sizes:

29. Anchors:—(a) For ashlar or courses balanced on the wall, shall be $\frac{1}{4}$" x $\frac{1}{4}$" or $\frac{1}{8}$" x $\frac{5}{8}$", or No. 6 gauge galvanized wire.

30. (b) For projecting courses not balanced on the wall, shall be not less than $\frac{5}{8}$" round or square bars of equal cross section.

31. Hangers shall be $\frac{5}{8}$" diameter round bars or other shapes of equal cross section area.

32. Clips and straps shall be $\frac{3}{8}$" x 2".

33. Pins shall be $\frac{1}{2}$" diameter round bars.

34. Continuous rods on concrete wall faces to which Terra Cotta ashlar is clipped, shall be $\frac{5}{8}$" diameter round bars which shall be secured to the masonry with $\frac{1}{2}$" diameter round anchors placed not more than 2' 0" on centers.

35. All steel or iron supporting metal work shall be clean and thoroughly protected with two coats of pure red lead and linseed oil paint, asphaltum applied hot, or other approved protective compound.

Protection of Supporting Metal Work

36. Metal work of every description, supporting Terra Cotta, shall be imbedded thoroughly in the masonry backing and when not so imbedded, metal work shall be protected against corrosion by encasing with cement mortar or in cement mortar masonry.

37. When the back of a Terra Cotta course comes in contact with iron or structural concrete in such manner as to prevent the encasing of supporting iron from the rear, an opening shall be made in the top to admit of the placing of the encasing mortar as required above.

Mortar

38. All cement used for setting mortar shall be of a standard brand of Portland cement fulfilling the requirements both physical and chemical of the standard specifications for Portland cement adopted by the American Society for Testing Materials.

39. All sand used for setting mortar shall be clean, sharp and well graded in size.

40. All mortar for setting and pointing shall be composed of one volume of Portland cement to three volumes of sand. Hydrated lime, not to exceed 9 pounds to the sack of cement, shall be added.

41. The sand and cement and lime, if any, shall be thoroughly mixed dry before any water is added. The use of retempered mortar shall not be permitted.

Setting

42. All Terra Cotta shall be set true to a line and carefully laid in a solid bed of mortar. All rebates in bed and cross joints from front to back and top to bottom, shall be filled solid with mortar leaving no voids. Each piece of Terra Cotta shall be tamped into place, excess mortar cut off and struck with a jointer or trowel. All sills, wall copings and other capping courses, shall be set in a thick bed of mortar and well pounded down so that the mortar fills all spaces around bottom of webs of Terra Cotta.

43. All Terra Cotta projecting courses shall be so set that the arris casting a shadow shall be true to line.

44. When the Terra Cotta work is of such scope or character that the proper handling and setting of the Terra Cotta require special skill and knowledge, the Terra Cotta manufacturer shall, if required by the contract, furnish a competent Terra Cotta setter to assist in the sorting, selecting and handling of the Terra Cotta, to co-operate with the setting contractor, to assist him when cutting or fitting of the Terra Cotta is necessary, to advise as to interpretation of setting drawings and to help generally in securing rapid, efficient progress during the setting of the Terra Cotta. For such service the setting contractor shall pay such setter full time at his regular wage rate. When the furnishing of such a competent setter involves traveling expenses, the setting contractor shall pay the same and also make an allowance for his board.

45. When the services of such a competent setter are not required under the contract, the Terra Cotta manufacturer may, at his own option and expense, send such a representative to the work who shall perform the above services, and the setting contractor shall co-operate with and aid and facilitate the performance of such services by such representative.

Pointing

46. All joints in Terra Cotta shall be pointed and struck as the setting progresses except in freezing weather. In freezing weather and when re-pointing is necessary, all joints shall be raked or cut out to a depth of $\frac{1}{2}$" and the pointing mortar driven into the joint and struck with a jointing tool.

47. All joints in overhanging Terra Cotta, balustrades, parapets and free standing features shall have joints raked out one-half ($\frac{1}{2}$) inch, and pointed with an approved elastic cement.

Protection

48. All uncompleted walls including Terra Cotta and backing shall be protected by waterproof covering at night and at any time when liable to injury from storms or freezing. (Note:—All other protection required for projecting courses, jambs of openings, etc., is provided for under the work of other trades.)

Cleaning Down

49. Upon completion of the work, mason's wedges, shoring, supports and centering and all other false work and protections shall be removed and the Terra Cotta cleaned down. If satisfactory results cannot be obtained by the use of abrasive soap or washing powder, a solution consisting of 1½ pints of muriatic acid to a gallon of water may be used. In the use of acid solutions only wooden pails and fibre brushes shall be employed.

Glossary of Terms Relating to Terra Cotta

Surface Finish

50. Surface Finish designates the texture of the surface of the clay body prior to application of Ceramic Finish.

51. It may be:
(a) *Smooth.*
(b) *Tooled or Drove.*
(b1) Eight lines to the inch.
(b2) Six lines to the inch.
(c) *Light irregular drag or combing.*
(d) *Heavy irregular drag or combing.*
(e) *Special.*

52. A special Surface Finish like "bush-hammered," "pitted," "vermiculated," etc., involves extra expense and, if required, should be clearly specified.

53. *Surface Finish for unglazed surfaces* may be smooth or may be tooled with a light or heavy drag. Flat surfaces of sufficient width may be tooled, while the curved surfaces of mouldings may be left smooth.
Surface Finish for glazed Ceramic Finish (whether lustrous or mat) is usually made smooth.

54. *Granite Colors*, if unglazed, may be made smooth or with irregular drag, or pitted. A bush-hammered or special surface involves extra expense, and if required should be clearly specified. If glazed Ceramic Finish is used for Granite Colors the surface treatment is usually smooth.

Ceramic Finish and Color

55. Ceramic Finish designates the surface and color applied by the ceramic processes of coating, glazing, burning, etc.

56. (1) *Unglazed Terra Cotta*: Terra Cotta with a Ceramic Finish producing an unglazed finish made in various shades of buff, gray, salmon, red and brown. Most colors thus made are vitreous.

57. (2) *Glazed or Enameled Terra Cotta*: Terra Cotta having an impervious Ceramic Finish of a glassy texture which may be either lustrous or mat (sometimes designated as full or dull glazes or enamels) made in various colors.

58. (3) *Granite Color Terra Cotta*:
(a) Unglazed Granite Color:—A mottled Ceramic Finish similar to unpolished granite.
(b) Glazed or Enameled Granite Color:—A mottled Ceramic Finish similar to polished granite, made either lustrous or mat.

59. (4) *Polychrome Terra Cotta or Faience*: Terra Cotta having two or more colors on the same piece.
(a) Polychrome, unglazed:—Unglazed Terra Cotta having two or more colors on the same piece.
(b) Polychrome, glazed:—Glazed Terra Cotta having two or more colors on the same piece.
(c) Polychrome, blended colors:—Made only in glazed Terra Cotta. If, in polychrome glazed work, the colors are not to be separated by definite lines or contours of ornaments, but are to be blended together by brush treatment, or the like, the term "Polychrome, blended colors" shall be used. The character of work expected should be explicitly described.

(Note:—For polychrome work always clearly specify the work to be done and the number of colors on a single piece.)

60. (5) *Special*: There are a number of Ceramic Finishes used by individual manufacturers the processes for which are patented or the names copyrighted which are not included in this Glossary.

61. (6) *Semi-Glaze*: An ambiguous term which should never be used.

62. (7) *Fire-Gilding*: A coating of gold glaze, either mat or lustrous, fixed by an additional burning (The area of surface to be gilded should be clearly described.)

Short Form Specification

for

The Manufacture, Furnishing and Setting of Terra Cotta

For Incorporation in the Architect's Specifications

To be used in connection with Standard Specifications and the Standard General Conditions of the American Institute of Architects.

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63. (Note to architect:—The Standard Specification does not state who shall set the Terra Cotta, who shall provide wood centering, scaffolding, hoists, cover boards and protection (except tops of walls against weather). It does not include any cement or concrete work in connection with forming gutter grades and washes on projecting courses and features, or the furnishing or setting of sheet metal flashings and gutter linings. It does not include the furnishing and erection of metal supporting members which are riveted or bolted with short bolts to the structural steel or structural concrete. It requires the architect to show on his drawings the sizes and arrangement of rolled or fabricated structural shapes used for supporting Terra Cotta. (See notes on corollary clauses at end of this specification for the work of other trades to take care of such omissions.)

GENERAL CONDITIONS

64. The general conditions of the American Institute of Architects, Third Edition, shall form a part of this specification and contract and all work shall be subject to the provisions thereof.

Work Included

65. The work included in the contract comprises the manufacture, (and) delivery (and setting) of all Terra Cotta in accordance with the contract drawings and these specifications.

66. All (here insert a complete description of work) shall be of Terra Cotta.

Work Not Included

67. The following items are not included as a part of the contract for furnishing (and setting) Terra Cotta.

(a) Masonry backing. See specifications for (.....).
(b) The furnishing and erection of metal supporting members which are riveted or bolted with short bolts to the structural steel. See specifications for (.....).
(c) Cement or concrete grading for gutters, washes, floors, etc. See specifications for (.....).
(d) Furnishing and setting sheet metal. See specifications for (.....).

MATERIALS AND WORKMANSHIP

68. All Terra Cotta work under this contract, except as hereinafter specified, shall be executed in strict conformity with the Standard Specification for the Manufacture, Furnishing and Setting of Terra Cotta, adopted by the National Terra Cotta Society; which Standard Specification is hereby declared and made a part of this specification with the same force and effect as if written herein in full.

Surface Finish, Ceramic Finish and Color

69. All Terra Cotta (Note:—If several textures or finishes are to be used give location of each) shall be

70. (1) *Unglazed:*
Surface Finish of flat members shall be
(a) *Smooth.*
(b) *Tooled or Drove.*
(b1) Eight lines to the inch.
(b2) Six lines to the inch.
(c) *Light irregular drag or combing.*
(d) *Heavy irregular drag or combing.*
(e) *Special.* (Note:—Special surface finishes like "hush-hammered," "pitted," "vermiculated," etc., should be described.)

71. The surface finishes of mouldings and curved surfaces generally shall be
(Note:—Unless otherwise specified these surfaces are generally made smooth.)

72. (2) *Unglazed Granite Colors:* Surface finishes of flat members generally shall be (a, b, c, d, e). The surface finish of mouldings and curved surfaces generally shall be
(Note:—Unless otherwise specified these surfaces are generally made smooth.)

73. (3) *Lustrous or Full Glazed or Enameled:* Surface finish shall be
(Note:—Unless otherwise specified these surfaces are generally made smooth.)

74. (4) *Mat or Dull Glazed or Enameled:* Surface finish shall be (See Note 3).

75. (5) *Lustrous or Full Glazed or Enameled Granite:* Surface finish shall be (See Note 3).

76. (6) *Mat or Dull Glazed Enameled Granite:* Surface finish shall be (See Note 3).

77. The color of the Terra Cotta generally shall be (.....) as per approved sample or samples.

78. (7) The Terra Cotta comprising (....described here in detail....) shall be (two, three, four) color polychrome. Colors (....specify where....) shall be blended.

79. (8) The surface finishes of (....specify where....) shall be fire gilded with (mat or lustrous) gold glaze.
(Note:—Sections 1, 2, 3, 4, 5, 6, are alternates. If there is no polychrome work or no fire gilding omit sections 7 and 8. Sections a, b, c, d, e, are alternates for surface finish.)

Delivery

80. The Terra Cotta manufacturer shall furnish and deliver (f. o. b. cars factory with freight allowed to destination) (on trucks at the site of the building) (and set) all the Terra Cotta as indicated on the drawings or as here described.

Setting

81. All Terra Cotta shall be set by the (Terra Cotta manufacturer), (mason....). For such anchors and metal work as are to be furnished by the setting contractor see Standard Specification.

(Note to architect:—If the Terra Cotta manufacturer is to set his material include the following clause in the Terra Cotta specification. See also suggested clauses at end of this specification to take care of these omissions and for incorporation in the specifications for the work of other trades.)

82. "Hoisting service, storage space, setting mortar delivered on the scaffold, outside and inside scaffolds, runways and platforms, water, temporary light and removal of refuse, shall be furnished to the Terra Cotta manufacturer free of charge by the (....mason contractor....)."

Terra Cotta Setter

(Note to architect:—If the work is of such scope or character that the proper handling and setting requires special skill, the following clause may be inserted: "The Terra Cotta manufacturer shall furnish at the expense of the setting contractor a competent Terra Cotta setter to assist in the sorting, selecting, handling and setting of the Terra Cotta.")

Joints

83. (The Standard Specification does not require any joints to be rubbed. If rubbed joints are to be required it should be so stated here.)

84. (The Standard Specification requires all joints to be approximately $\frac{1}{4}$" wide. If joints of a different width are desired it should be so stated here.)

Suggestions for Corollary Clauses

85. 1.—If the Terra Cotta is to be set by the Terra Cotta manufacturer, a clause similar in purport to the following should be included in the general requirements relating to masonry or brick work:

86. "Terra Cotta will be furnished and set by the Terra Cotta manufacturer. Hoisting service, storage space, setting mortar delivered on the scaffold, outside and inside scaffolds, runways and platforms, water, temporary light and removal of refuse shall be furnished to the Terra Cotta manufacturer, free of charge, by the (mason contractor)." A provision should also be included to the effect that the (mason contractor) shall construct the brick (concrete) backing for the Terra Cotta and "The backing shall proceed simultaneously with the setting of Terra Cotta. Each piece of Terra Cotta shall be backed up solid with brick and mortar, so as to make a perfect bond and homogeneous mass between wall lines. This backing shall extend beyond the wall line when necessary to structural stability. If concrete is used it shall not be stronger than a 1 to 9 mixture."
Also a provision under which the (mason) contractor shall place all concrete or cement grading for gutters, washes and balcony, loggia or other floors.

87. In the case of parapet walls specifications should state that flashing if used shall be carried through the wall, or if flashing be not used the back of the parapet wall shall be damp-proofed and the water-proofing carried through the wall.

88. 2.—In the specifications for sheet metal work there should be included a clause similar in purport to the following:

"The washes on all cornices and other exposed surfaces, where shown or specified, shall be covered with ( ) which shall be turned up against vertical surfaces (cap flashed) and cemented into the raggles provided for the purpose in the Terra Cotta."

89. 3.—Structural Supports.
Under "Structural Steel," a clause similar in purport to the following should be included: "Beams, channels, angles, T's, plates and fabricated members for supporting Terra Cotta, and which are secured to the structural steel with short bolts or rivets, shall be furnished and erected by the contractor for (structural steel)."

90. Under "Structural Concrete" a clause similar in purport to the following should be included: "Steel beams, channels, angles, T's, plates, fabricated brackets and outlookers and other members, bolts, rods, wires, anchors, and sleeves for supporting Terra Cotta, which are imbedded in the structural concrete, also shelf angles and continuous rods attached to structural concrete shall be furnished and set by the contractor for structural concrete, in strict accordance with setting drawings prepared by the Terra Cotta manufacturer." (For information as to the sizes and character of bolts, rods, anchors, etc., see section E paragraphs 24 to 35 inclusive on "Supporting Metal Work and Anchors" of Standard Specification for the Manufacture, Furnishing and Setting of Terra Cotta. Such supports should be clearly shown on the drawings.)

91. 4.—Under "Rough Carpentry" or other suitable division of work, there should be included a clause providing that the contractor shall furnish, set and maintain all centering, cover boards, boxing and protection for Terra Cotta, and remove the same upon completion of the work.

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